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EARLY INTERVENTION PROGRAMS

ANNUAL REPORT FISCAL YEAR 1989

BUREAU OF PARENT, CHILD, AND ADOLESCENT HEALTH
MASSACHUSETTS DEPARTMENT OF PUBLIC HEALTH

January 1991

THE COMMONWEALTH OF MASSACHUSETTS

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EXECUTIVE SUMMARY

WHAT IS EARLY INTERVENTION?

Early Intervention Programs (EIP) offer therapeutic, educational and social services to children and families across Massachusetts. EIP services facilitate the development of children between the ages of birth and three years who are at serious risk of experiencing a functional delay, such as a motor or language problem, due to biological or environmental factors. The Bureau of Parent, Child, and Adolescent Health of the Massachusetts Department of Public Health currently provides financial support to forty-three Early Intervention Programs. Early Intervention Programs are focused on the family unit, recognizing the crucial influence of the child's daily environment on his or her growth and development.

HOW MANY CHILDREN ARE SERVED BY EARLY INTERVENTION PROGRAMS?

Over 7,000 children and their families were served by Early Intervention Programs during the Commonwealth's fiscal year 1989. This represents a 2.3 percent increase from the previous fiscal year. These 7,066 children represent about three percent of all children age birth to three in Massachusetts and twenty-eight percent of the population of children estimated to be eligible for these services. There were 2,893 new admissions to the Early Intervention Program during fiscal year 1989.

REFERRALS AND ADMISSIONS TO EARLY INTERVENTION PROGRAMS

The pattern in referral sources to Early Intervention Programs varies with the children's age at referral. Hospitals refer the largest proportion of children under 12 months old (44.3%); the primary care physician is the most frequent referral source (24.0%) for children age 13 to 36 months old. During the past five years gains have been made in referring and admitting children at younger ages to Early Intervention Programs.

While children are being referred earlier and admitted earlier, the time between referral and admission has steadily widened during the past five years. This widening gap may be due to an increase in both the number of referrals and the younger age of children at the time of referral, leading to a longer stay in the program. These trends have translated into a decrease in the percent of children admitted within one month of referral.

WHO IS IN EARLY INTERVENTION PROGRAMS?

Early Intervention Programs are available to all children in Massachusetts who are at risk of developmental delay, regardless of income level. Sociodemographic comparisons demonstrate that children in Early Intervention Programs are representative of the Commonwealth's population with respect to the distribution of race/ethnicity. There was a tendency for mothers in the EIP population to be either younger or older than mothers in the general population of the state. This is consistent with the fact that mothers' age below 20 is an environmental risk factor and above 35 an established risk factor. There was also a higher proportion of mothers in the EIP population than statewide who had not completed high school, which is also an environmental risk factor.

The majority of children in EIP (61.0%) are living below 200% of poverty; 40.1 percent of the children in EIP are living below the poverty line and another 20.9 percent are living in families who are between 100% and 200% of poverty. EIP families who were in the less than 100% of poverty group had a high proportion of unemployed parents (91.8%). More surprising, 29.4 percent of the families with two full-time incomes and 48.2 percent with at least one full-time income were at or below 200% of poverty.

Among single parent households (N=1,595), 77.9 percent lived below 100% of poverty, while among two parent households 20.9 percent lived below 100% of poverty. A high percentage of the 122 children in foster care (49.2%) were living below 100% of poverty and 27.1 percent of foster care families were between 100% and 200% of poverty.

RISK OF DEVELOPMENTAL DELAY

Three major risk categories--established, biological, and environmental--are used to describe the factors that place children at potential risk for developmental delay (see "Early Intervention Program Client Database" page 5 for definitions of these risk categories). Over a third of the EIP population (35.8%) were at established risk for developmental delay, 54.5 percent were at biological risk, and 69.1 percent were at environmental risk. Of the children in Early Intervention Programs 3,682 (52.1%) were classified into more than one of the three risk categories.

SEVERITY OF DEVELOPMENTAL DELAY

Data describing severity of delay were collected on the following functional areas for the children in Early Intervention Programs: gross motor, fine motor, expressive language, receptive language, social/emotional, and cognitive functioning. At the time of admission, 59.7 percent of the children in Early Intervention Programs had a moderate or severe delay in at least one of these functional areas. Among all children in EIP the largest proportion had a moderate or severe expressive language problem (39.0%) followed by gross motor (38.6%) and fine motor (33.3%) problems.

CHILDREN DISCHARGED FROM EARLY INTERVENTION PROGRAMS

During fiscal year 1989 2,830 children were discharged from EIP. Of these children 1,815 (64.1%) were discharged because they were three years of age or because they had no further service needs and over 500 of them (28.2%) were referred at discharge to mainstream child care, in either a nursery school or day care program or were in the care of their parents. Among the 2,830 children discharged from Early Intervention Programs the mean length of active participation was 16.8 months. However, the distribution of length of active participation in Early Intervention Programs indicates that most children (57.4%) received services for more than a year and 26.7 percent were in Early Intervention Programs for more than two years.

INTRODUCTION

Historical Background

Massachusetts has supported early intervention and similar services since the early 1970s, when a statewide system of Clinical Nursery Schools was established to provide multidisciplinary services for very young children with disabilities. Originally, these services focused on children aged three to five. Chapter 766, the Special Education law, was passed in 1976 and schools took on the responsibility for children aged three and older. The Clinical Nursery schools became Early Intervention Programs (EIP) and focused exclusively on children ages birth to three and their families.

The Department of Public Health (DPH) entered the early intervention field by contributing to the funding of several new Early Intervention Programs. At the same time programs operated by other agencies began to experience funding instability; uncertainty arose about the institutional base for Early Intervention Programs.

In 1980 early intervention providers, parents, and involved state agencies were convened to look at the current status of EIP services. At the same time, the Developmental Disabilities Council funded a study of the EIP system in response to the concern about the services available to young children. In 1981 a legislative task force was formed. This task force made a series of recommendations that were passed into Massachusetts General Law as Chapter 111G in 1982. Key points in 111G included: (1) designation of the Department of Public Health as the lead agency for EIP services, with responsibility and authority to regulate EIP services and EIP funding; (2) establishment of a permanent Early Intervention Advisory Committee, consisting of parents, providers, and representatives from state agencies; and (3) mandated participation of the Massachusetts Medicaid program in the support of EIP services.

In the years immediately following the Department promulgated uniform standards for EIP services and introduced strategies to utilize Medicaid and other funds effectively. The Advisory Committee was established and joined with the Department in a cooperative effort to promote the growth of effective EIP services. In 1986 Congress passed P.L. 99-457, Part H, making many of the provisions of Chapter 111G national law. In addition, Part H introduced the concept of the Individual Family Service Plan which significantly broadened the individual educational plan concept. Part H laid out a five year planning period phasing in entitlement to services for all

eligible children. The Department of Public Health continues to be the designated lead agency for EIP services under this act and the Early Intervention Advisory Committee serves as the required Interagency Coordinating Council, under Part H.

During the period of this report, Early Intervention Programs were operated by the Division of Early Childhood of the Bureau of Parent, Child, and Adolescent Health (formerly the Division of Family Health Services). EIP efforts of the Bureau's and its Division of Early Childhood reflect the Surgeon General's goal of establishing a comprehensive, family-centered, community-based system of services to children with special health care needs, as well as the Part H mandate for a statewide, comprehensive, multidisciplinary, interagency, coordinated system of Early Intervention Program services.

Early Intervention Programs

Early Intervention Programs offer comprehensive and integrated developmental services, within the larger system of early childhood services provided by the Bureau of Parent, Child, and Adolescent Health. EIP services facilitate the developmental progress of children between the ages of birth and three years whose developmental patterns are atypical, or whose development is at serious risk to become atypical through the influence of certain biological or environmental factors. Early Intervention Programs are focused on the family unit, recognizing the crucial influence of the child's daily environment on his or her growth and development. Therefore, EIP staff work in partnership with individuals present in the child's natural environment, which may include settings other than the child's home. The program seeks to support and encourage the caregiver's growth toward independence in planning for the child's continuing and changing needs.

services ☆

Program services include screening, assessment, home visits, center-based groups for children, parent groups, and individual center-based services for children and parents. Services are provided by staff educated and credentialed in the fields of developmental education, speech pathology, occupational therapy, physical therapy, social work, and nursing. All families work with a staff member who acts as case manager, helping them in gaining access to needed services not available through the EIP. EIP services are located throughout the state and serve children in all cities and towns in the Commonwealth. The EIP services are linked to several other services provided by DPH, such as the Women, Infants, and Children Supplemental Feeding Program (WIC), Community Health Centers, Adolescent Pregnancy and Parenting Programs, and Growth

and Nutrition programs. In addition, the EIP system is supported by a variety of contracts for technical assistance and training.

The Division of Early Childhood provides fixed route, round trip transportation services, and bus monitors to help drivers, when needed, for those families who would otherwise be unable to travel to Early Intervention Programs. For fiscal year 1989, the Division's transportation system provided over 70,000 trips to 2,000 families at 54 program sites across the Commonwealth. Services were initiated on Martha's Vineyard through the local Regional Transit Authority. A cooperative car seat loaner program with the Massachusetts Passenger Safety program in the Bureau's Division of School Age and Adolescent Health was developed and implemented in conjunction with the Montachusett Regional Transit Authority in Fitchburg.

During fiscal year 1989 approximately $15.4 million of public funds were expended for the provision of EIP services to 7,066 children and families. The cost per child was under $2,200. Funds were drawn from the sources shown in Table 1 below.

Table 1

what is the budget now?

Funding Sources for Massachusetts Early Intervention Programs Massachusetts Fiscal Year 1989

Source of Funding	Amount of Funding
State appropriation for purchased services	$ 6,700,000
State appropriation supporting direct service staff	1,400,000
State appropriation for transportation services	1,000,000
Federal 89-313 funds	2,400,000
Federal 99-457 direct service funds	700,000
Federal MCH (Title V) funds	70,000
State/Federal Medicaid funds	3,100,000
TOTAL	$15,370,000

EARLY INTERVENTION PROGRAM CLIENT DATABASE

Data Collection

The Massachusetts Department of Public Health designed, implemented, and maintains the Early Intervention Program Client Database which assists in planning and monitoring Early Intervention Program services in Massachusetts. The Early Intervention Program Client Database focuses on data collection at two points in time--first, at the time of registration and second, when the child is discharged. The Early Intervention Program Client Database includes information that is collected by EIP staff based on examinations, interviews, medical records, and consultations:

- *Sociodemographic information:* sex, age, income, geographic area, public assistance, household composition, race, ancestry, and primary language spoken in the home
- *Diagnostic and clinical information:* reason for referral, physical health, developmental status, focus of treatment, and discharge status
- *Family characteristics:* parents' sociodemographic and economic status, size of family, and family resources
- *Service information:* type of services provided at the time of admission and discharge

This report presents the information that was collected about children and their families who were served by Early Intervention Programs during the fiscal year, 1989, from July 1, 1988 through June 30, 1989. It includes a description of the population of children served by Early Intervention Programs, their risks for developmental delay, and changes in their functional status. The report also contains a brief summary of trends in the data between fiscal years 1985 and 1989. Statewide birth data for children born in calendar year 1987, which provide the denominators for some statistics that characterize the EIP population, were derived from Birth Certificate data from January 1, 1987 through December 31, 1987. These data were more current and accurate than information form the 1980 Census.

Definition of Terms

PERCENT OF POVERTY

Percent of poverty was determined for each household using the 1989 standard topology from the Medical Assistance Income Standards established by the Federal Government. The

percent of poverty calculation accounts for household income adjusted for household size. It is a measure of an individual family's income as a percent of the poverty level.

ESTABLISHED, BIOLOGICAL, AND ENVIRONMENTAL RISK

The three primary types of risk are defined conceptually here and in operational terms by the criteria in Figure 1.

Established Risk is applied to diagnosed disorders and conditions of known etiology that are expected to lead to varying degrees of developmental delay in affected infants and children.

Biological Risk is the presence of a documented history of prenatal, perinatal, neonatal or early developmental events or conditions suggestive of damage to the central nervous system which increase the probability of atypical development.

Environmental Risk is the presence of an environmental factor that may pose a serious threat to a child's development such as limited parental care, inadequate health care, poor nutrition, limited opportunities for expression of adaptive behaviors or a lack of physical and social stimulation.

FUNCTIONAL STATUS

Data on a child's functional status in six areas is determined and collected by EIP staff at the time of entry into EIP and again at discharge. The six areas are: gross motor, fine motor, expressive language, receptive language, social/emotional, and cognitive functioning. Clinical judgement as well as standardized measures or instruments are relied upon to assess each of these six areas. The following guidelines were provided as instructions to clinicians to increase the consistency of these data across programs:

> Based on months of delay, identify the category of delay for each functional area.
>
> - 0 to 6 months delayed -- no or slight delay;
> - 6 to 10 months delayed -- moderate delay;
> - More than 10 months delayed -- severe delay;
> - If unknown indicate this with the appropriate code ('9')

Figure 1
Criteria Used to Assign Children in Early Intervention Programs to Risk Groups and Percent of Children by Risk Group

ESTABLISHED RISK
5.4%

- Neuromuscular problem
- Congenital anomaly
- Vision problem
- Hearing problem
- Cerebral palsy
- Down's syndrome
- Hydrocephaly
- Microcephaly
- Spina bifida
- Head injury
- Autism
- Fetal alcohol syndrome

BIOLOGICAL RISK
10.7%

- Respiratory problem
- LBW (LT 2500 grams)
- Nutrition
- Very premature (LT 33 wks)
- Cardiac problem
- Seizure problem
- Failure-To-Thrive
- Kidney, Renal

ENVIRONMENTAL RISK
23.7%

- Mother's age LT 19 years
- Mother's age GT 18, LT 12 yrs education
- Limited/disabled family member
- Open protective service case
- Parenting skills
- Parental support system
- Parental cognitive problem
- Parental emotional problem
- Parental substance abuse
- Parental attachment
- Family crisis
- Homelessness

ESTABLISHED/ BIOLOGICAL
6.6%

ESTABLISHED/ ENVIRONMENTAL
8.2%

ENVIRONMENTAL/ BIOLOGICAL
21.6%

ESTABLISHED/ BIOLOGICAL ENVIRONMENTAL
15.6%

SOURCE: Early Intervention Program Data, FY 1989, Bureau of Parent, Child, and Adolescent Health, Dept of Public Health

Limitations of the Data

The Early Intervention Program Client Database represents only those children served in Early Intervention Programs certified by DPH. Therefore, it is not representative of all children in Massachusetts receiving EIP services or of children who are in need of services. Children who are on waiting lists for Early Intervention Programs at one of the DPH programs are not registered until they actually begin receiving services. The Early Intervention Program Client Database also excludes children whose parents do not want a form submitted to DPH, but based on anecdotal information from programs this is a small number of cases.

There has been much interest in and importance placed on the issue of access to Early Intervention Programs. While the dates of referral and admission coded on the Early Intervention Program registration form are an imperfect measure of timely access, these data are valuable when examined over time to discern trends. The referral date indicates the day the child first came to the attention of the EIP staff. The date of admission is the first day that services were delivered after screening was completed.

CHARACTERISTICS OF CHILDREN IN EARLY INTERVENTION PROGRAMS

Overview

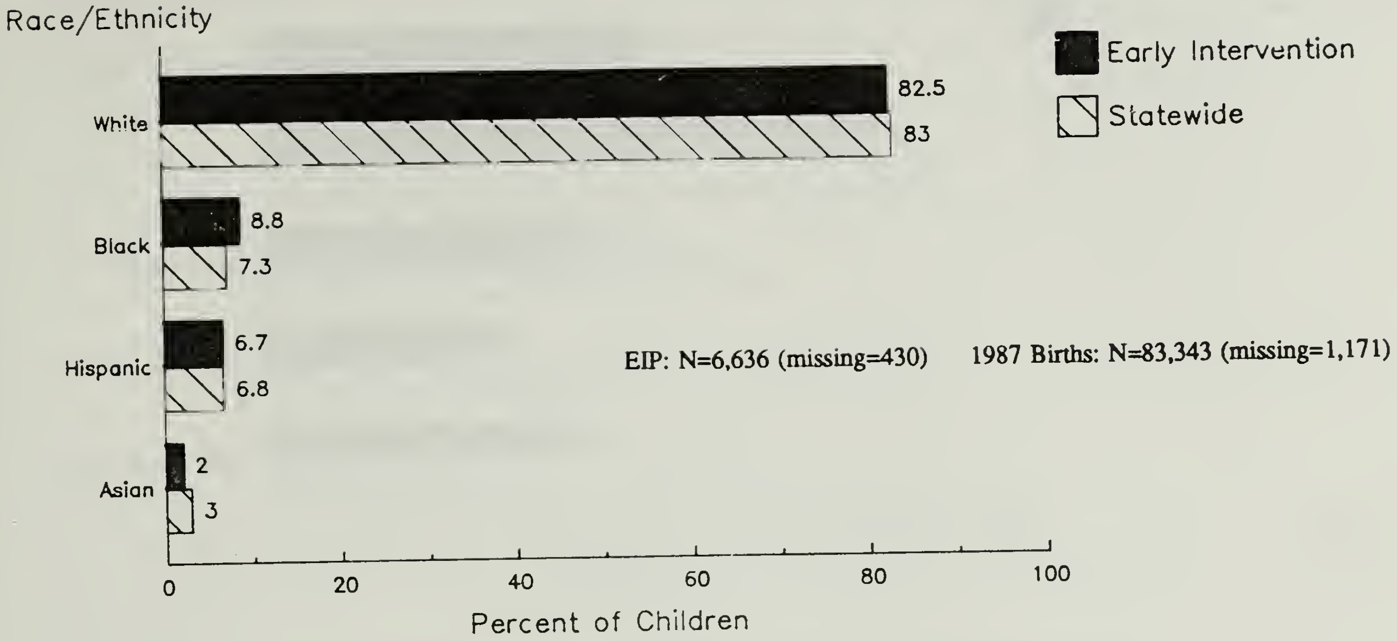
During fiscal year 1989 7,066 children and their families were served by the forty-three Early Intervention Programs supported by the Department of Public Health. These children comprise about three percent of all children age birth to three in Massachusetts and an estimated twenty-eight percent of the children estimated to be eligible for services (based on estimates from the "Early Intervention Needs Assessment," MDPH, September 1989). The number of children enrolled in individual Early Intervention Programs ranged from 54 to 386, with an average of 164 children served per program. The number of active clients at any one time based on the client count as of December 1, 1988, which is the date used for federal reporting, was 4,350 children. There were 2,893 admissions and 2,830 discharges during fiscal year 1989. The average length of active participation was 16.8 months, and 26.7 percent stayed in Early Intervention for over two years.

Sociodemographic Characteristics

The sociodemographic characteristics of children enrolled in Early Intervention Programs in fiscal year 1989 were compared with the statewide population of children born in calendar year 1987. This comparison demonstrates a very similar distribution of race/ethnicity between the EIP population and the statewide population (Figure 2). EIP's tended to have more male children (57.8%) than the state as a whole (51.4%) (Figure 3).

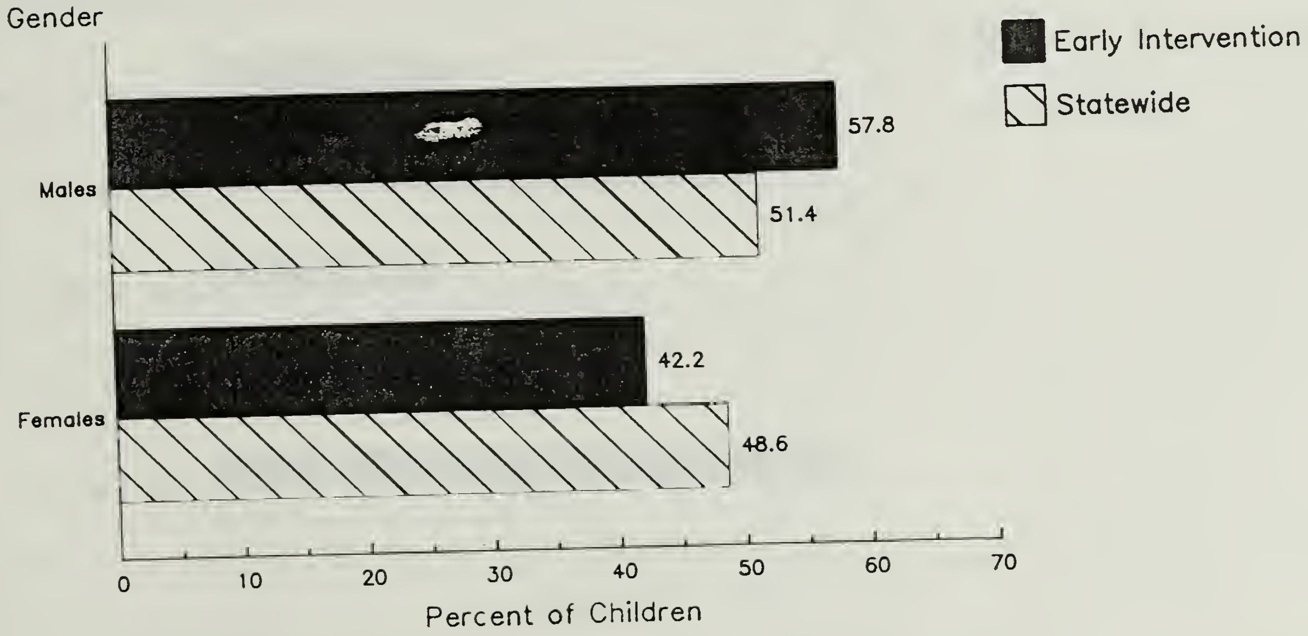
When compared to the statewide population, there was a tendency for mothers in the EIP population to be either younger than 20 or older than 34 years. This would be expected since being a teenage mother is an environmental risk factor and maternal age 35 and older is correlated with some diagnoses that are established risks for developmental delay. A higher proportion of mothers in the EIP population than the general population had not completed high school, which is an environmental risk factor (Figure 4). A higher proportion of EIP mothers also completed 17 or more years of education. A similar pattern is evident in Figure 5 for fathers' education.

Figure 2: Distribution of Race/Ethnicity Among Children in Early Intervention Programs and Statewide



EIP: N=6,636 (missing=430) 1987 Births: N=83,343 (missing=1,171)

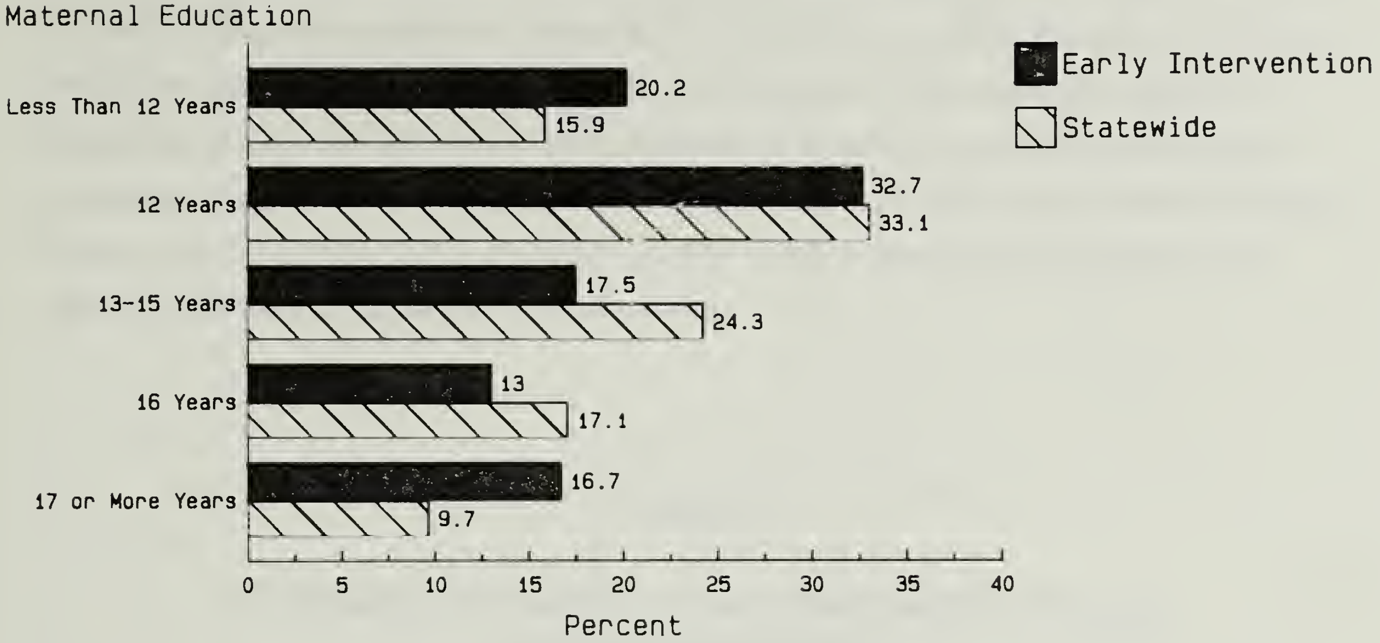
Figure 3: Distribution of Gender Among Children in Early Intervention Programs and Statewide



EIP: N=7,031 (missing=35) 1987 Births: N=84,514

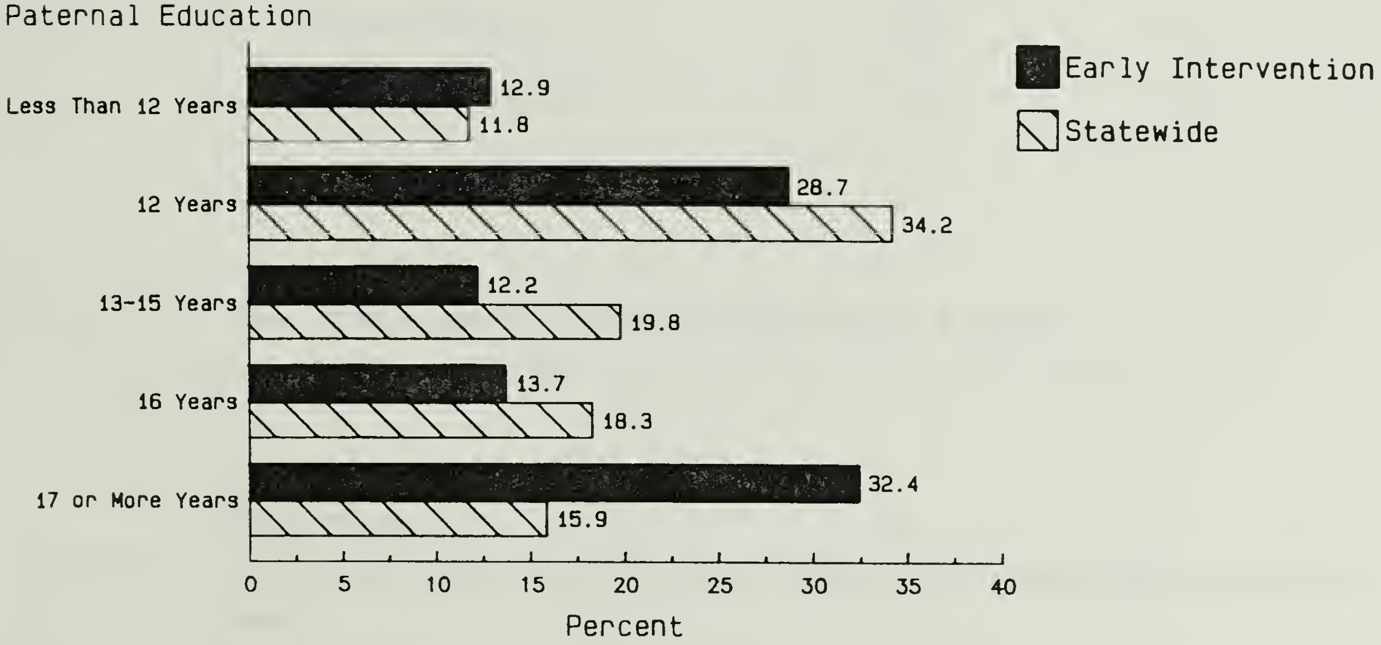
SOURCE: Early Intervention Program Data, FY 1989, Bureau of Parent, Child, and Adolescent Health, Dept of Public Health; Vital Statistics Birth Data 1987

Figure 4: Distribution of Maternal Education in Early Intervention Programs and Statewide



EIP: N=7,003 (missing=63) 1987 Births: N=80,885 (missing=3,629)

Figure 5: Distribution of Paternal Education in Early Intervention Programs and Statewide



EIP: N=6,460 (missing=606) 1987 Births: N=70,995 (missing=13,519)

SOURCE: Early Intervention Program Data, FY 1989, Bureau of Parent, Child, and Adolescent Health, Dept of Public Health; Vital Statistics Birth Data 1987

All children in Massachusetts who are at risk of developmental delay are eligible for Early Intervention Programs regardless of income level. Nevertheless, the issue of access to services for low-income families is of concern for publicly funded programs. This analysis examines the distribution of socio-economic-status (SES), measured as a percent of poverty, within the Early Intervention Programs' client population. Most of the children in EIP for whom percent of poverty is known are living below 200% of poverty (61.0%). Table 2 shows that 40.1 percent of the children in EIP were living below 100% of poverty.

Table 2

Distribution of Families in Early Intervention Programs by Percent of Poverty

Percent of Poverty	Percent of Families
Less Than 100%	40.1
100% to 200%	20.9
201% to 300%	18.3
Greater Than 300%	20.7

Note: 100% of poverty (1989) for a family of four = $ 12,096

N=5,107 (missing=1,959)

SOURCE: Early Intervention Program Data, FY 1989, Bureau of Parent, Child, and Adolescent Health, Dept of Public Health

Another 20.9 percent were living in families with incomes between 100% and 200% of poverty. As expected, a high proportion of unemployed parents (91.8%) were in the less than 100% of poverty group (Figure 6). In addition, 45.8 percent of the families with at least one full-time income and 29.4 percent of the families with two full-time incomes were at or below 200% of poverty.

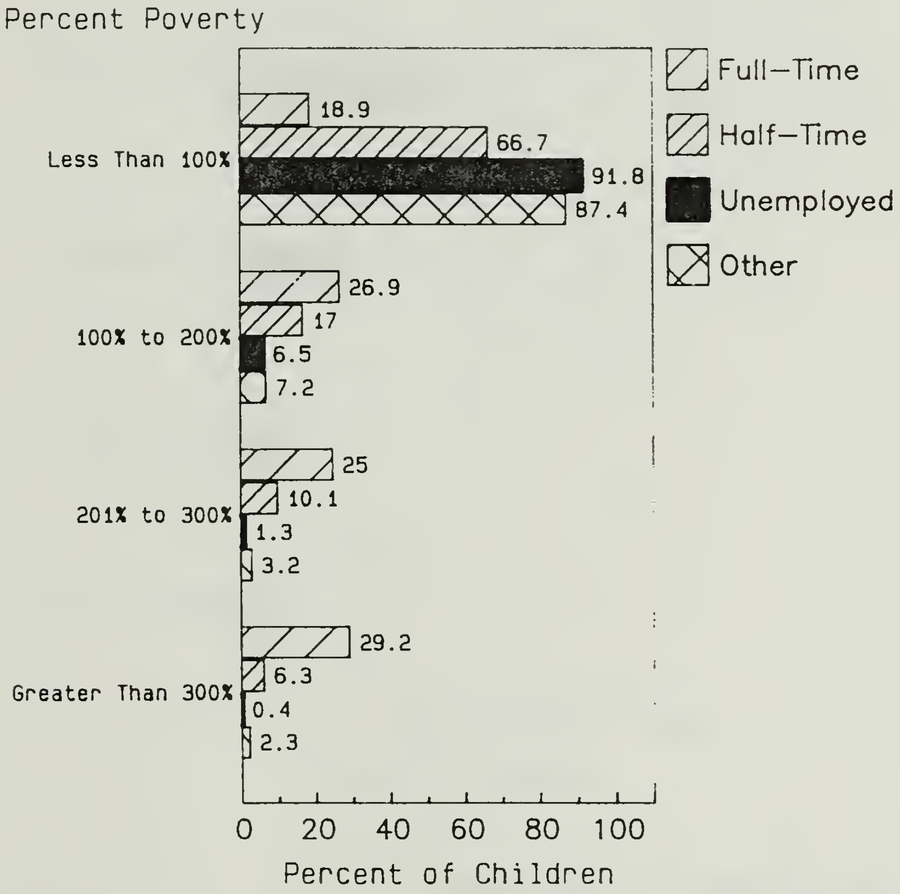


Figure 6: Employment Status of Early Intervention Program Families by Percent of Poverty

N=5,101 (missing=1,965)

SOURCE: Early Intervention Program Data, FY 1989, Bureau of Parent, Child, and Adolescent Health, Dept of Public Health

The association between poverty and employment status was reflected in differences between single parent households (N=1,595), 77.9 percent of which lived below 100% of poverty, and two parent households (N=3,289), of which 20.9 percent lived below 100% of poverty (Figure 7). In addition, a high percentage of the 122 children in foster care (49.2%) were living below 100% of poverty with an additional 27.1 percent of the children in foster care families living between 100% and 200% of poverty.

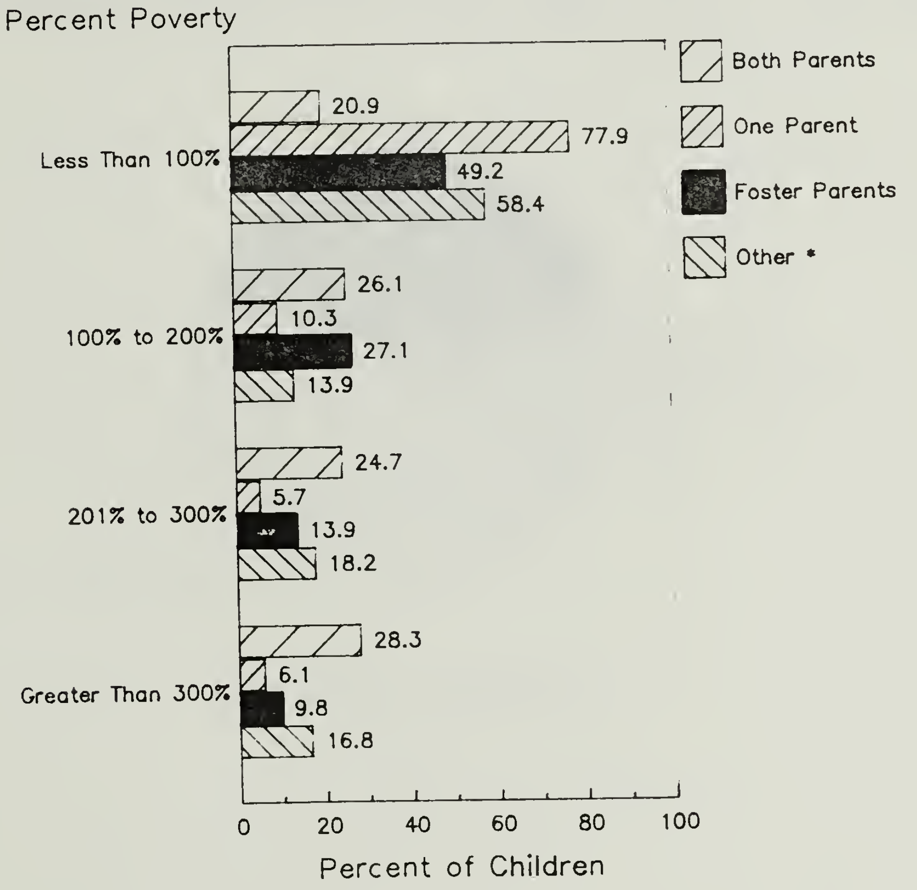


Figure 7: Person(s) with Responsibility for Early Intervention Program Children by Percent of Poverty

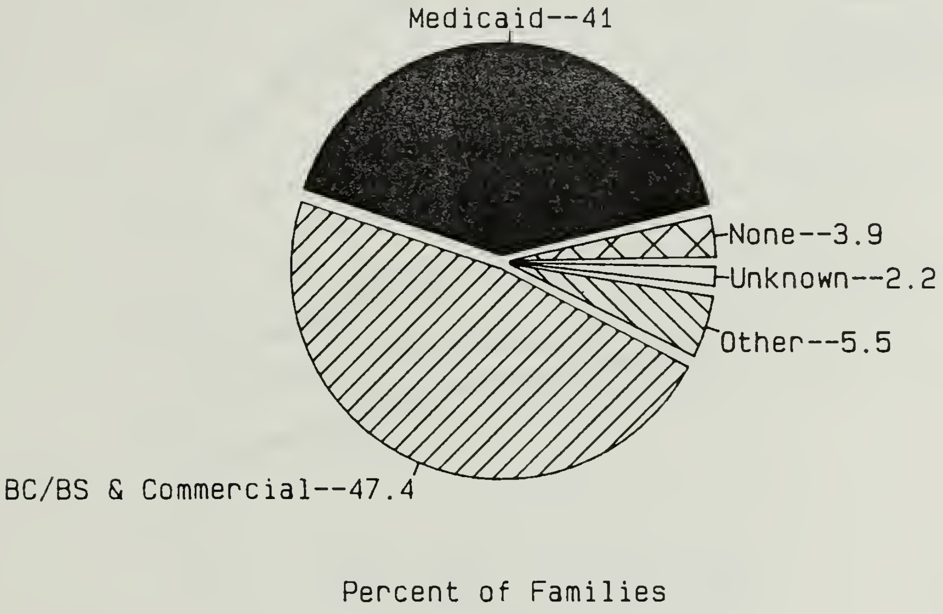
* Other refers to Grandparents, Legal Guardians, other caregivers

N=5,107 (missing=1,959)

SOURCE: Early Intervention Program Data, FY 1989, Bureau of Parent, Child, and Adolescent Health, Dept of Public Health

The largest proportion of families in EIP have commercial insurance coverage (47.4%). The next largest proportion of clients are covered by Medicaid (41.0%) and a small proportion of families (3.9%) have no insurance (Figure 8).

Figure 8: Insurance Carriers Among Early Intervention Program Children and Their Families



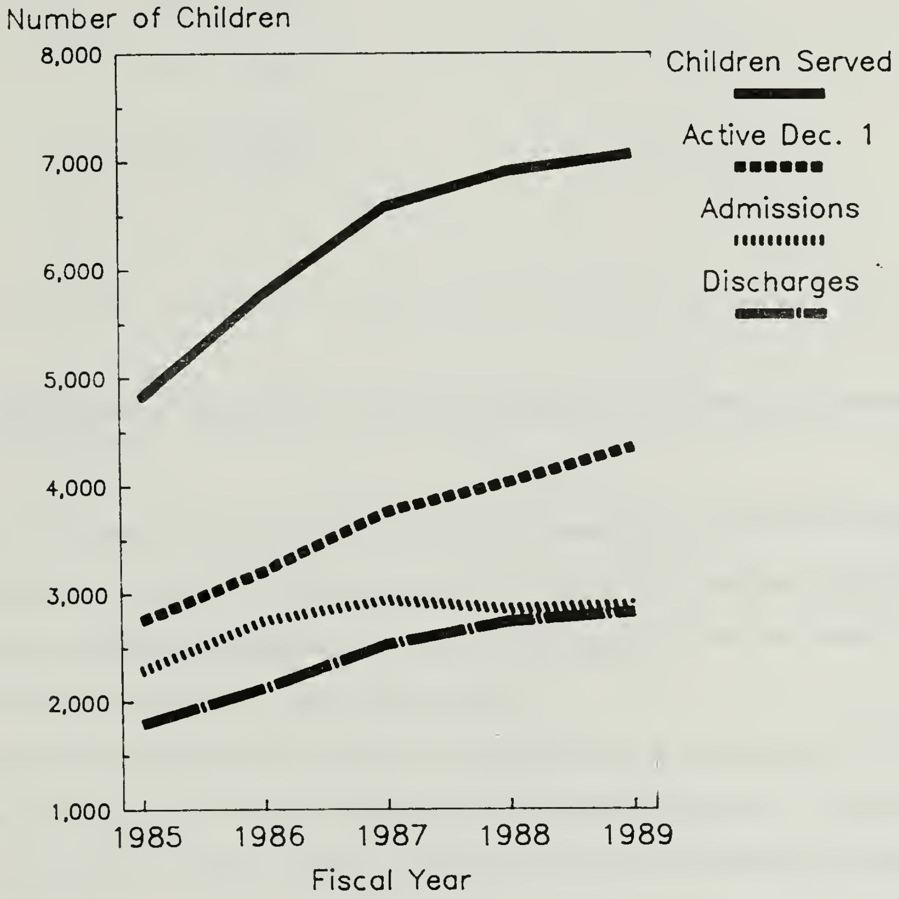
N=7,034 (missing=32)

SOURCE: Early Intervention Program Data, FY 1989, Bureau of Parent, Child, and Adolescent Health, Dept of Public Health

Trends in Early Intervention Program Clients

The number of EIP recipients have clearly expanded since 1985. The number of children served has increased from less than 5,000 in 1985 to over 7,000 children in 1989 (Figure 9). However, as Table 3 demonstrates, the number of children served appears to be increasing at a slower rate over time.

Figure 9: Children Served by Early Intervention Programs in Fiscal Years 1985 to 1989



Fiscal Year	1985	1986	1987	1988	1989
Children Served	4,811	5,771	6,582	6,907	7,066
Active Dec. 1	2,755	3,213	3,760	4,032	4,350
Admissions	2,289	2,756	2,942	2,856	2,893
Discharges	1,796	2,131	2,532	2,746	2,830

SOURCE: Early Intervention Program Data, FY 1985-1989, Bureau of Parent, Child, and Adolescent Health, Dept of Public Health

Table 3

Percent Increase in the Number of Early Intervention Program Clients Served From One Fiscal Year to the Next

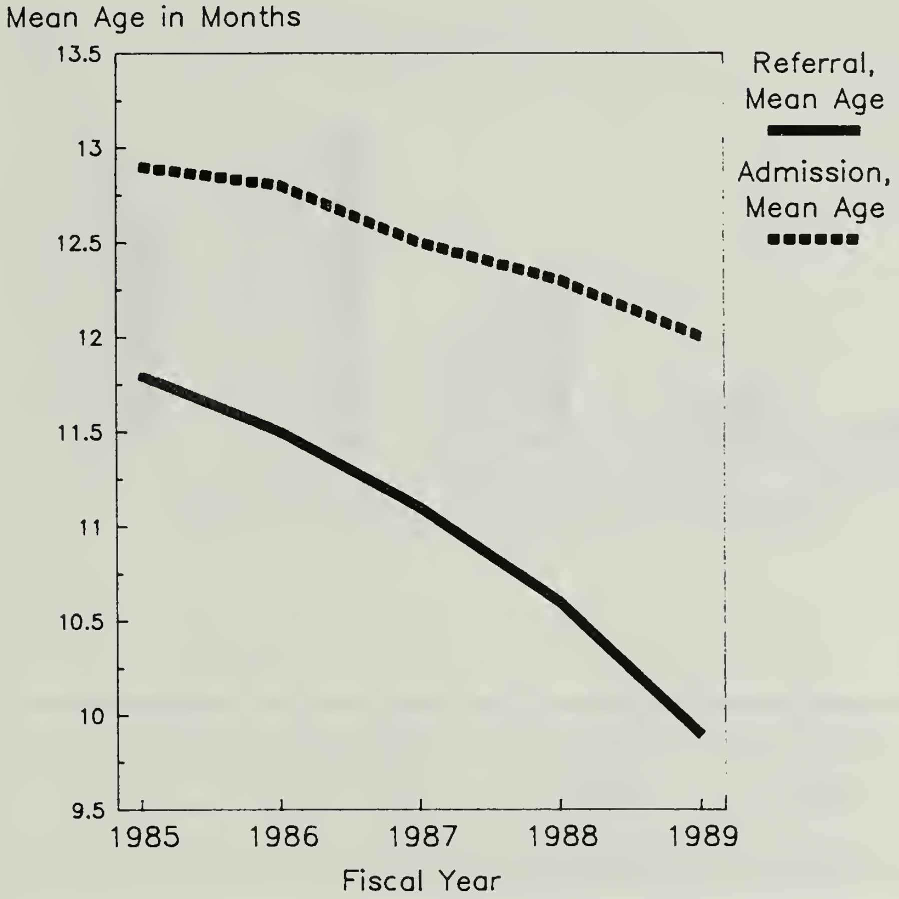
Fiscal Years	Percent Increase
1985 - 1986	20.0
1986 - 1987	14.1
1987 - 1988	4.9
1988 - 1989	2.3

SOURCE: Early Intervention Program Data, FY 1985-1989, Bureau of Parent, Child, and Adolescent Health, Dept of Public Health

A goal of the Bureau is for eligible children to be identified and referred to Early Intervention Programs as early as possible. As the data in Figure 10 suggest gains have been made in referring children to EIP at younger ages. Admissions have also been occurring at a younger mean age over the course of the five year period studied.

While children overall are being referred and admitted at a younger age, the time between referral and admission has been steadily increasing over the past five years. As Figure 11 demonstrates, the percent of children admitted within one month of referral has decreased over the five years. Further, each year, Early Intervention Programs are admitting an increasing number of children more than two months after referral. This widening gap is due to an increase in the number of referrals and an increase in referrals at younger ages, which result in longer stays in service. The decreasing percent of children admitted within one month of referral is a concern of DPH and all EIP providers.

Figure 10: Mean Age at Referral and at Admission to Early Intervention Programs by Fiscal Year

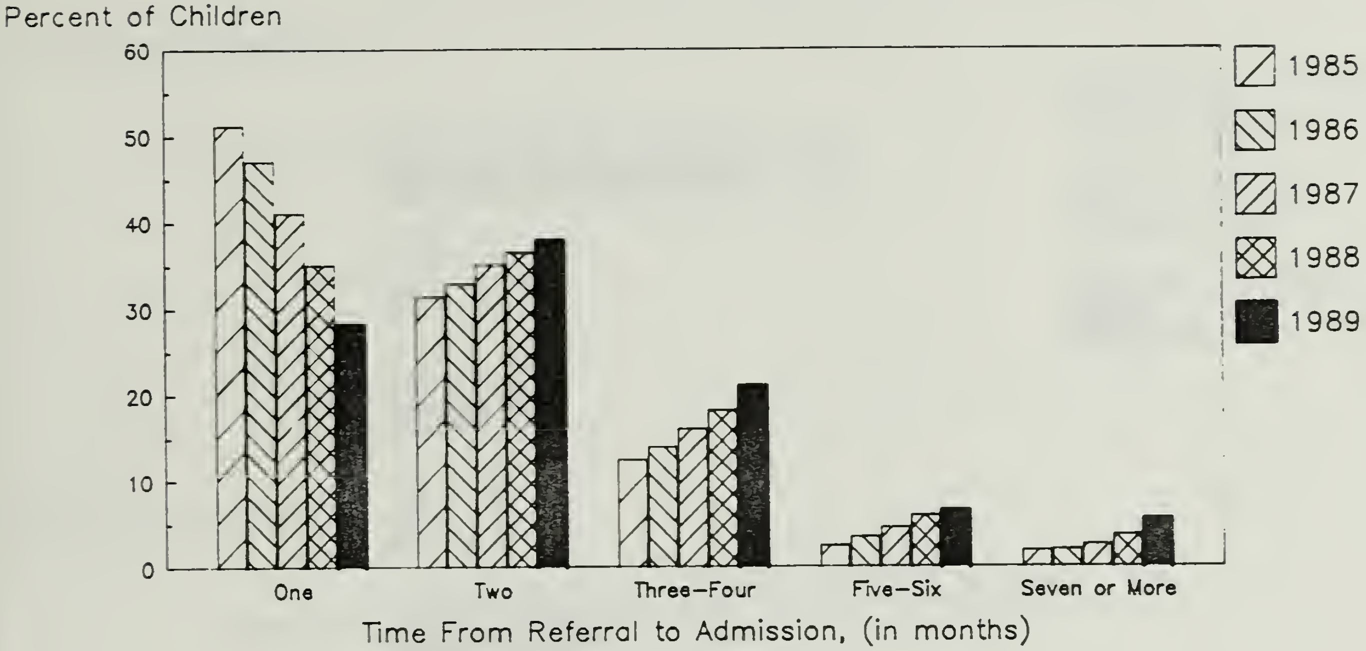


Fiscal Year	1985	1986	1987	1988	1989
N =	4,745	5,688	6,489	6,828	6,974
missing =	66	83	84	79	92

SOURCE: Early Intervention Program Data, FY 1985-1989, Bureau of Parent, Child, and Adolescent Health, Dept of Public Health

[illegible]

Figure 11: Time From Referral to Admission into an Early Intervention Program In Months by Fiscal Year



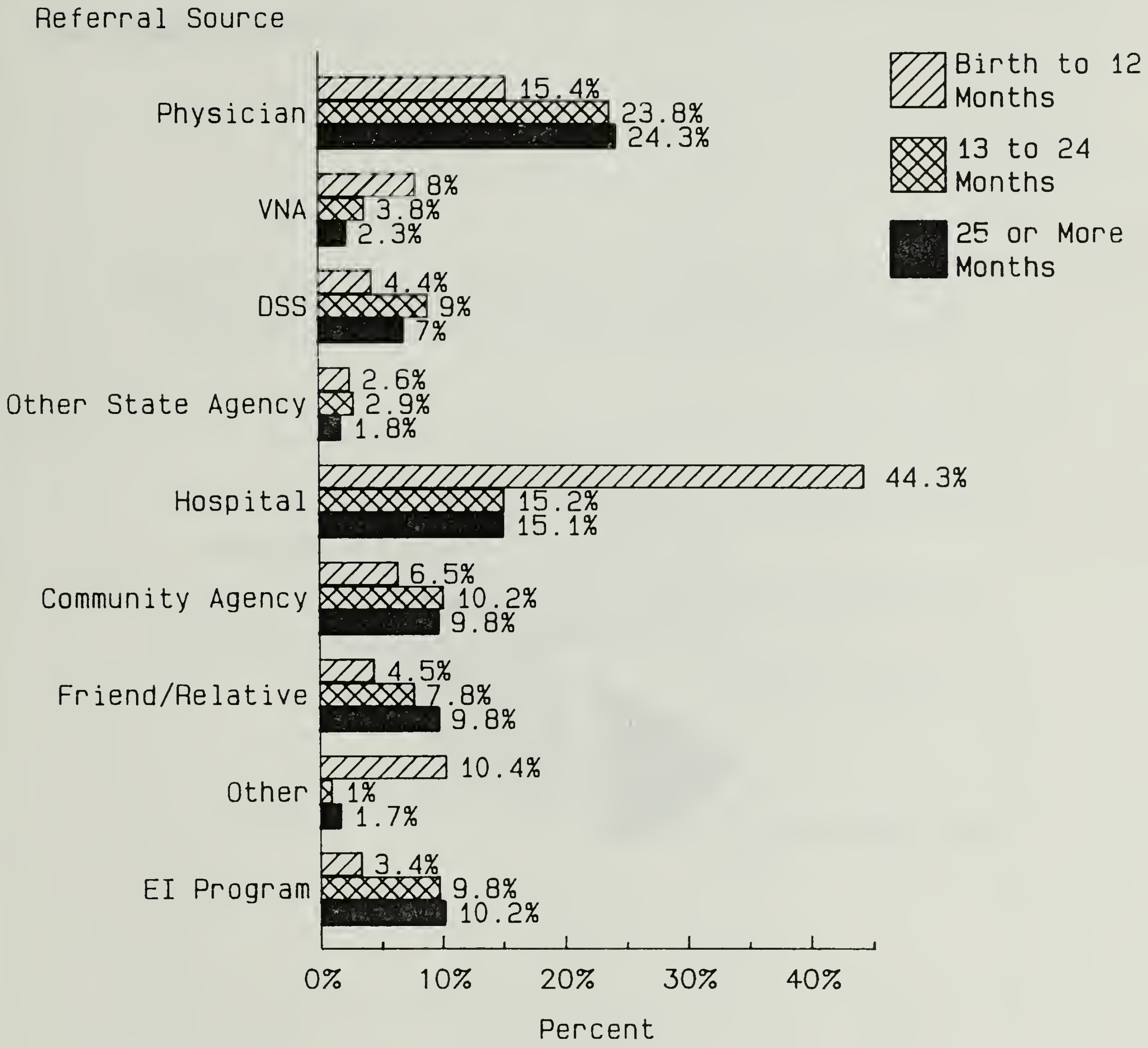
Fiscal Year	1985	1986	1987	1988	1989
N =	4,745	5,688	6,489	6,828	6,974
missing =	66	83	84	79	92

SOURCE: Early Intervention Program Data, FY 1985-1989, Bureau of Parent, Child, and Adolescent Health, Dept of Public Health

Referral Patterns

The distribution of referral sources to Early Intervention Programs changes as children grow older. The bar chart in Figure 12 shows that hospitals are responsible for the largest proportion of referrals among 0 to 12 month old children, while the primary care physician becomes the single most frequent referral source after the age of one year.

Figure 12: Percent of Children by Age and Source of Referral to Early Intervention Programs



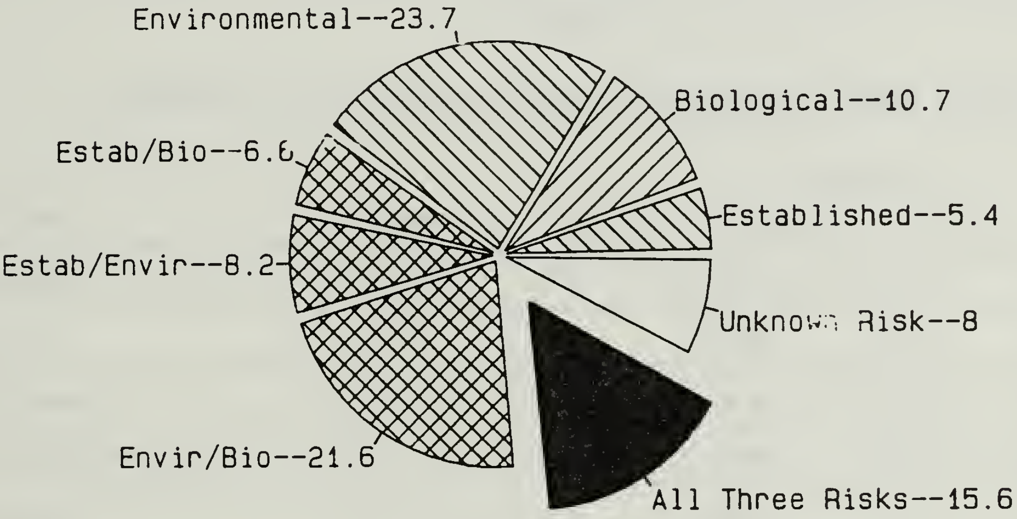
N=6,928 (missing=138)

SOURCE: Early Intervention Program Data, FY 1989, Bureau of Parent, Child, and Adolescent Health, Dept of Public Health

Risk of Developmental Delay

Three major risk categories, established, biological, and environmental are used to describe the factors that place children at risk for developmental delay (see Figure 1). Over a third of the EIP population (35.8%) were at established risk for developmental delay, 54.5 percent were at biological risk, and 69.1 percent were at environmental risk in 1989. Figure 13 and Table 4 show the distribution of EIP children by risk group; they include the three primary risk categories and four categories of multiple risk.

Figure 13: Distribution of Risks Among the Children in Early Intervention Programs



N=7,066

SOURCE: Early Intervention Program Data, FY 1989, Bureau of Parent, Child, and Adolescent Health, Dept of Public Health

There were 3,682 children who were classified into more than one of the three risk categories (52.1%), 2,727 of whom were in two risk categories and 1,103 of whom had all three risks. Fewer children, 2,816 (39.9%) were identified as meeting the criteria for only one of the three risks.

ESTABLISHED RISK

Established risk refers to diagnosed disorders and conditions that are expected to lead to developmental delay among affected infants and children, such as a neuromuscular problem, congenital abnormality, vision or hearing problem, cerebral palsy, Down's syndrome, spina bifida, head injury, or autism. Thirteen criteria were used to identify children who were at established risk. Among the population of children who received services in fiscal year 1989 2,536 (35.8%) were at established risk for developmental delay. Of these, 1,536 (60.6%) met a single criterion. Among the remaining children, 609 (24.0%) met two criteria, 225 (8.9%) met three criteria and 166 (6.5%) met four or more criteria.

Table 4

Children in Early Intervention Programs by Risk Group

Risk Group	Frequency	Percent	Cumulative Frequency	Cumulative Percent
Established	383	5.4	383	5.4
Biological	756	10.7	1,139	16.1
Environmental	1,677	23.7	2,816	39.9
Established/Biological	468	6.6	3,284	46.5
Established/ Environmental	582	8.2	3,866	54.7
Biological/ Environmental	1,529	21.6	5,395	76.4
All Risk Factors	1,103	15.6	6,498	92.0
No Risk Category Classification	568	8.0	7,066	100.0

SOURCE: Early Intervention Program Data, FY 1989, Bureau of Parent, Child, and Adolescent Health, Dept of Public Health

BIOLOGICAL RISK

Biological risk indicates the presence of a prenatal, perinatal, neonatal or early developmental event or condition suggestive of damage to the central nervous system such as a respiratory problem, low birth weight, cardiac problem, or seizure problem that increases the probability of atypical development. Eight criteria were used to identify children who were at biological risk. The total number of children at biological risk was 3,856 (54.5%). Of these 3,856 children 1,711 (44.4%) met a single criterion, 1,325 (34.4%) met two, 553 (14.3%) met three, and 267 (6.9%) met four or more criteria. These children were, more often than not, also at established or environmental risk.

ENVIRONMENTAL RISK

Environmental risk indicates the presence of an environmental factor that may pose a serious threat to a child's development such as limited parental care, inadequate health care, poor nutrition, limited opportunities for expression of adaptive behaviors or a lack of physical and social stimulation. Twelve criteria were used to identify children who were at environmental risk. The total number of children at environmental risk was 4,891 (69.1%). Among the children identified as environmentally at risk 1,533 (31.3%) met only one of the twelve criteria, 976 (20.0%) met two, 762 (15.6%) met three, and 1,620 (33.1%) met four or more criteria. The environmentally at risk population of children was the single largest group, but again, most children also had either an established and/or a biological risk.

NO RISK CLASSIFICATION

There was also a group where no risk category classification could be made based on the data used as criteria in this analysis. Further analysis of the Early Intervention Programs Client Database on this group of children showed that manifested developmental delays, such as moderate expressive language delays, were documented for all but seven cases.

Functional Problems

Data describing severity of delay were collected on the following functional areas for the children in Early Intervention Programs: gross motor, fine motor, expressive language, receptive

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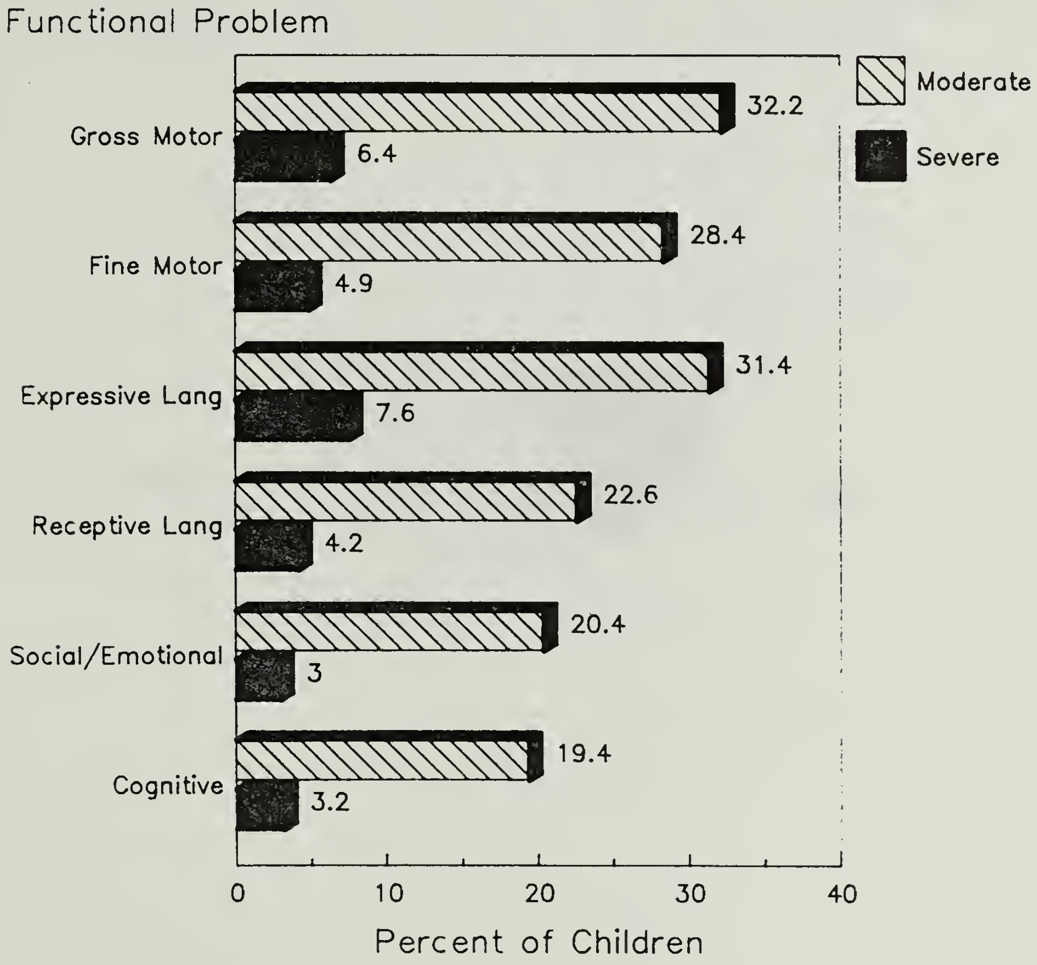
Note: The cumulative percentage of children at established (35.8%), biological (54.5%), and environmental (69.1%) risk is greater then 100 percent because most children have more than one risk.

language, social/emotional, and cognitive functioning. As the data in Figure 14 show, the largest proportion of children had expressive language problems (39.0%) followed by gross motor (38.6%) and fine motor problems (33.3%).

At the time of admission, 59.7 percent of the children in Early Intervention Programs had a moderate or severe delay in at least one of these functional areas. Of these children, 25.3 percent

Figure 14: Percent of Children in Early Intervention Programs with Specific Moderate and Severe Functional Problems

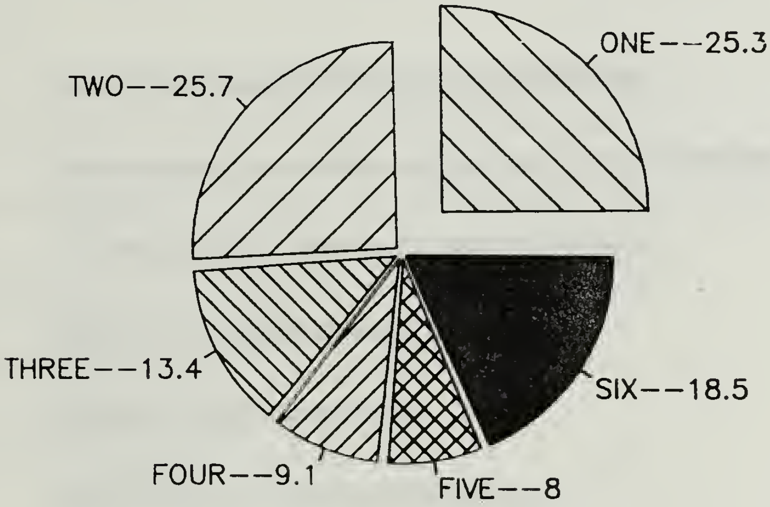


N=6,968 (missing=98)

SOURCE: Early Intervention Program Data, FY 1989, Bureau of Parent, Child, and Adolescent Health, Dept of Public Health

had moderate to severe delays in only one functional area, and 25.7 percent were moderately to severely delayed in two functional areas (Figure 15). Almost half (49.0%) of these children had three or more functional delays.

Figure 15: Percent of Children in Early Intervention Programs with One to Six Moderate and/or Severe Functional Problems



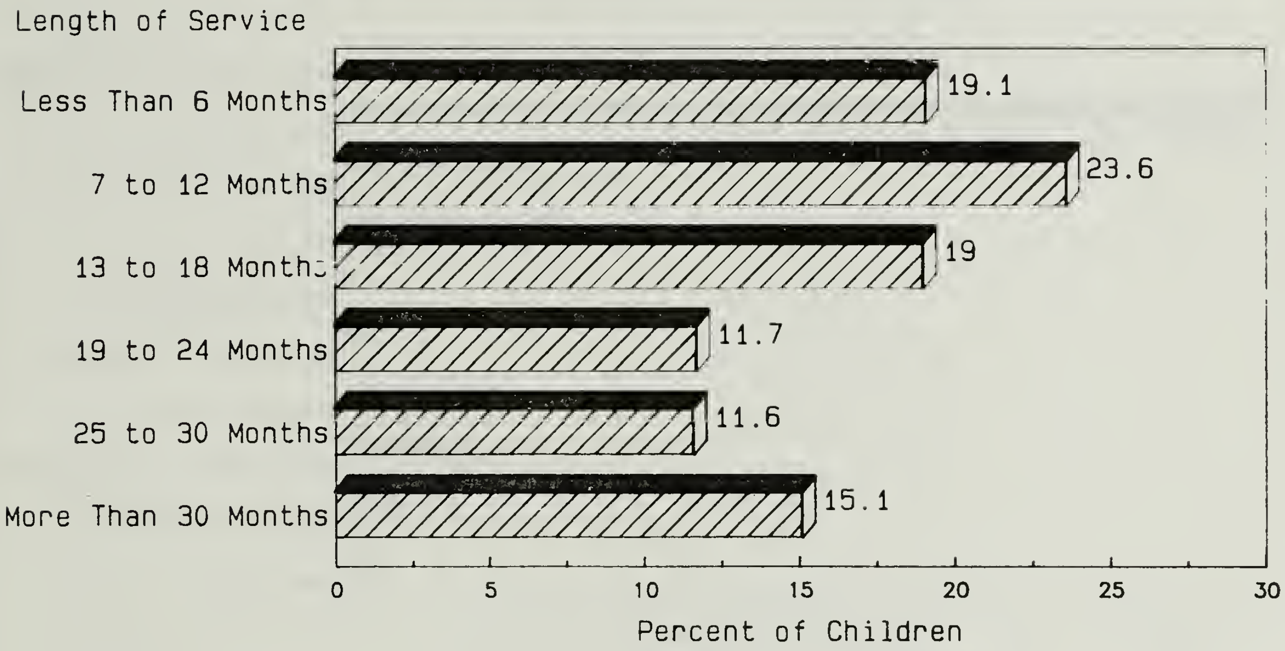
N=4,211 (missing=98)

SOURCE: Early Intervention Program Data, FY 1989, Bureau of Parent, Child, and Adolescent Health, Dept of Public Health

Children Discharged from Early Intervention

During fiscal year 1989 2,830 children were discharged from Early Intervention Programs. The mean length of active participation in Early Intervention Programs for children discharged in fiscal year 1989 was 16.8 months. However, the distribution of length of active service in Early Intervention Programs, as shown in Figure 16, indicates that most children (57.4%) received services for more than a year and 26.7 percent were in Early Intervention Programs for more than two years.

Figure 16: Length of Service to Children in Early Intervention Programs

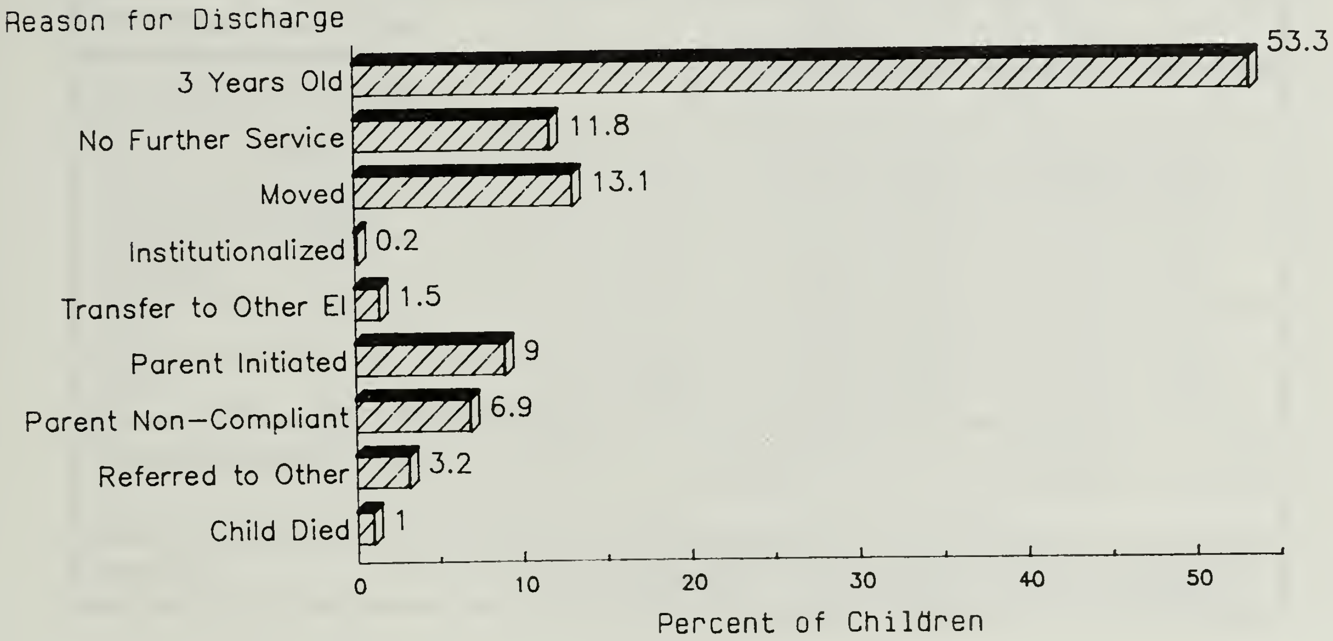


N=2,830

SOURCE: Early Intervention Program Data, FY 1989, Bureau of Parent, Child, and Adolescent Health, Dept of Public Health

As the data in Figure 17 show, more than half the children (53.3%) were discharged because they had reached the age of three years, and over 10 percent of the children discharged had no further service requirements. The children discharged at three years of age or because they had no further service needs were further examined by risk status and referral in Table 5. These data show that over 500 (18.1%) of the 2,830 children discharged were placed in the mainstream of child care, either to a nursery school, day care program or their parents.

Figure 17: Reason for Discharge from Early Intervention Programs



N=2,821 (missing=9)

SOURCE: Early Intervention Program Data, FY 1989, Bureau of Parent, Child, and Adolescent Health, Dept of Public Health

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Table 5

Referrals from Early Intervention Programs: Children Discharged at Age Three Years or Because No Further Service Was Indicated

Referral	Risk Groups Established or Biological	Environmental Only	All Risk Groups *
No Further Care Required			
Day Care +	42 (3.6%)	28 (6.2%)	76 (4.2%)
Nursery School +	52 (4.5)	26 (5.7)	85 (4.7)
Parents, No Service +	220 (18.8)	78 (17.2)	350 (19.3)
No Further Care: Subtotal	314	132	511
Continuing Care Required			
School LEA/SPED	712 (61.0)	233 (51.4)	1,056 (58.2)
Integrated Preschool	20 (1.7)	5 (1.1)	27 (1.5)
Headstart	39 (3.3)	40 (8.8)	85 (4.7)
DSS	13 (1.1)	18 (4.0)	32 (1.8)
Other	69 (5.9)	25 (5.5)	104 (5.7)
Continuing Care: Subtotal	853	321	1,304
TOTAL	1,167 (100.0%)	453 (100.0%)	1,815 (100.0%)

+ Only children who were referred exclusively to these three categories and not to any other referral source were included in the subtotal of 511 cases. This was done because any other type of referral would indicate a need for further special care.

* The numbers in this Column are larger than the sum of their respective rows because they include 195 cases from the "no risk group classification" discussed earlier.

SOURCE: Early Intervention Program Data, FY 1989, Bureau of Parent, Child, and Adolescent Health, Dept of Public Health

SUMMARY

Delivering Early Intervention Program Services

The MDPH currently provides financial support to forty-three Early Intervention Programs that serve children and families in Massachusetts. Early Intervention Programs (EIP) focus exclusively on children ages birth to three and their families. These programs are certified by DPH's Division of Early Childhood and operate with ongoing monitoring from the Division's staff. Programs are funded through a request for proposals (RFP) process which takes place every five years. Continuous interaction between DPH and individual programs supports the delivery of EIP services after programs have been funded. The EIP are also represented on the Interagency Coordination Council (DPH's Early Intervention Advisory Committee), which meets bimonthly and advises the Department on issues that affect EIP services. The administrative, fiscal, and advisory structures that support EIP services provide mechanisms for communication about programmatic as well as policy issues.

The multidisciplinary services that include therapeutic, educational, and social services facilitate the developmental progress of children directly and indirectly through work with parents and other caregivers in the child's environment. The service delivery system in Massachusetts is committed to an approach that encompasses the child's environment and supports both the child and the caregivers who influence the child's growth.

The number of children served by EIP between fiscal years 1985 and 1989 grew steadily from 4,811 to 7,066 per year. However, the percent increase from year to year over this five year period has slowed from 20.0 percent to 2.3 percent, which indicates that the rate of program expansion decreased over time. The number of admissions was consistently higher than the number of discharges during this period. During the most recent years, the number of admissions has been only slightly higher than the number of discharges; in 1985 there were 493 more admissions than discharges and by 1989 there were only 63 more admissions than discharges. This suggests that not only have efforts to enroll children successfully taken place, but that EIP programs are consistently operating at or near current capacity.

The distribution of childrens' ages at time of referral over this five year period shows that an increasing proportion of children were referred prior to 4 months of age. Apparently, health professionals, especially in hospitals and physician's offices, are identifying and referring children at risk for development delay earlier. While 28.2 percent of referrals were in this age group in 1985,

by 1989 this age group accounted for 38.2 percent of referrals. The proportion of children 12 months or younger admitted to EIP has also increased over the five year period, while the proportion of children over one year has diminished slightly. The mean age at referral in 1985 was 11.8 months and it dropped each fiscal year after 1985; by 1989 it was 9.9 months. The mean age at admission dropped from 12.9 months to 12 months during this same period. These data demonstrate two simultaneous and positive trends, one from the community that is referring children at younger ages to EIP, and the other among program staff who are admitting children at younger ages.

However, the trend to admit children at earlier ages has not been able to keep pace with referrals. The increasing demand for EIP services and the trend toward earlier referrals has apparently lengthened the waiting period between referral and admission for most children. The proportion of children who were admitted one month from referral, which was typical in 1985, has steadily declined over the five year period. Children frequently wait at least two months between referral and admission now, and a smaller but increasing proportion of children wait 3 to 4 months. Longer waiting periods appear to be a result of increasing demand, rather than any programmatic change that created a barrier to speedy admissions. These data suggest that the Massachusetts EIP service system has expanded to the capacity of the current funding available, and raise important issues about future expansion of EIP services. The implementation of Part H of P.L. 99-457 and the impact of third party payor legislation enacted January 1990, will have a positive impact on capacity, but to what degree is still largely unknown.

Children in Early Intervention Programs

Children in Early Intervention Programs have a very similar distribution of race/ethnicity when compared to the population of very young children in the Commonwealth. Both teenage mothers and mothers 35 years and older were over represented in the EIP population. This would be expected since younger maternal age is an environmental risk factor for developmental delay and older maternal ages are correlated with some established diagnoses for developmental delay. There was a higher proportion of mothers in the EIP population that had not completed high school than in the general population, which is another environmental risk for developmental delay. However, there was also a higher proportion of mothers who had completed 17 or more years of education. These distributions are similar to the pattern evident for fathers' education.

In addition, the EIP population was more likely to be receiving Medicaid than the general population of families whose children were born in 1987; and 3.9 percent of the EIP population had

no insurance, slightly higher than the general population of families in 1987, which was approximately 2.5 percent (based on the payor source data from the 1987 Registry of Vital Events Birth Certificates).

While Early Intervention Programs are used by families in all socio-economic strata, the analysis suggests that EIP are making successful attempts to reach low-income families in Massachusetts, a population with a need for access to services. Over 40 percent of the families receiving EIP services in fiscal year 1989 were living below 100% of poverty and another 20.9 percent were between 100% and 200% of poverty. Not surprisingly, families who were unemployed and under-employed (one or both parents employed less than full time) were most likely to have income less than 100% of poverty. However, there was also a relatively large proportion of families with a full-time employed adult (45.8%) that were living at or below 200% of poverty. These are working poor families whose incomes, relative to family size, provide a minimum standard of living. Children who were living with one parent were also more likely to be living at less than 100% of poverty. Equally important, a large proportion of children in foster care (49.2%) are living below 100% of poverty and an additional 27.1 percent of the children in foster care families are living between 100% and 200% of poverty.

Results in this report demonstrate that most of the children receiving Early Intervention Program services came to a program with multiple risks. More than half the children enrolled in EIP needed services that address multiple functional problems; of these children, nearly three-quarters needed services for two or more moderate to severe functional problems. These children require inter-disciplinary services not only to treat their current functional problems, but to help them develop and maintain age appropriate skills. The Early Intervention Programs across the state are a crucial service for many families with children who are at risk of development delay. The multiple service linkages that Title V agencies, such as the Department of Public Health, can facilitate are advantageous in meeting the needs of children and families who use EIP services and other programs for children with special health care needs. These programs need continued support to maintain and increase services that prevent and ameliorate functional delays among young children in the Commonwealth of Massachusetts.

MASS. HS 33.4:990

EARLY INTERVENTION PROGRAMS

ANNUAL REPORT FISCAL YEAR 1990

BUREAU OF PARENT, CHILD, AND ADOLESCENT HEALTH
MASSACHUSETTS DEPARTMENT OF PUBLIC HEALTH

May 1991

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EXECUTIVE SUMMARY

WHAT IS EARLY INTERVENTION?

Early Intervention Programs (EIP) offer therapeutic, educational and social services to children and families across Massachusetts. EIP services facilitate the development of children between the ages of birth and three years who are at serious risk of experiencing a functional delay, such as a motor or language problem, due to biological or environmental factors. The Bureau of Parent, Child, and Adolescent Health of the Massachusetts Department of Public Health currently provides financial support to forty-three Early Intervention Programs. Early Intervention Programs are focused on the family unit, recognizing the crucial influence of the child's daily environment on his or her growth and development.

HOW MANY CHILDREN ARE SERVED BY EARLY INTERVENTION PROGRAMS?

Over 7,400 children and their families were served by Early Intervention Programs during the Commonwealth's fiscal year 1990. This represents a 4.8 percent increase from the previous fiscal year. These 7,421 children represent three percent of all children age birth to three in Massachusetts and thirty percent of the population of children estimated to be eligible for these services. There were 3,169 new admissions to the Early Intervention Program during fiscal year 1990.

REFERRALS AND ADMISSIONS TO EARLY INTERVENTION PROGRAMS

The pattern in referral sources to Early Intervention Programs varies with the children's age at referral. Hospitals refer the largest proportion of children birth to 12 months old (47.7%); the primary care physician is the most frequent referral source (24.9%) for children age 13 to 36 months old. During the past six years gains have been made in referring and admitting children at younger ages to Early Intervention Programs.

While children are being referred earlier and admitted earlier, the time between referral and admission has steadily widened during the past six years. This widening gap may be due to an increase in both the number of referrals and the younger age of children at the time of referral, leading to a longer stay in the program. These trends have translated into a decrease in the percent of children admitted within one month of referral.

WHO IS IN EARLY INTERVENTION PROGRAMS?

Early Intervention Programs are available to all children in Massachusetts who are at risk of developmental delay, regardless of income level. Sociodemographic comparisons demonstrate that children in Early Intervention Programs are representative of the Commonwealth's population with respect to the distribution of race/ethnicity. There was a tendency for mothers in the EIP population to be either younger or older than mothers in the general population of the state. This is consistent with the fact that mothers' age below 20 is an environmental risk factor and above 35 an established risk factor. There was also a higher proportion of mothers in the EIP population than statewide who had not completed high school, which is also an environmental risk factor.

The majority of children in EIP (59.0%) are living below 200% of poverty; 38.6 percent of the children in EIP are living below the poverty line and another 20.4 percent are living in families who are between 100% and 200% of poverty. EIP families who were in the less than 100% of poverty group had a high proportion of unemployed parents (88.2%). More surprising, 27.2 percent of the families with two full-time incomes and 44.4 percent with at least one full-time income were at or below 200% of poverty.

Among single parent households (N=1,614), 75.4 percent lived below 100% of poverty, while among two parent households 18.2 percent lived below 100% of poverty. A high percentage of the 146 children in foster care (43.8%) were living below 100% of poverty and 23.3 percent of foster care families were between 100% and 200% of poverty.

RISK OF DEVELOPMENTAL DELAY

Three major risk categories--established, biological, and environmental--are used to describe the factors that place children at potential risk for developmental delay (see "Early Intervention Program Client Database" page 5 for definitions of these risk categories). There were 40.2% children in EIP who were at established risk for developmental delay, 44.2 percent were at biological risk, and 48.9 percent were at environmental risk. Of the children in Early Intervention Programs 2,867 (38.6%) were classified into more than one of the three risk categories. Children who could not be classified into a specified risk group but who manifested moderate to severe delays in one or more developmental areas consisted of 671 (9.0%) children in the EIP population.

SEVERITY OF DEVELOPMENTAL DELAY

Data describing severity of delay were collected on the following functional areas for the children in Early Intervention Programs: gross motor, fine motor, expressive language, receptive language, social/emotional, and cognitive functioning. At the time of admission, 52.3 percent of the children in Early Intervention Programs had a moderate or severe delay in at least one of these functional areas. Among all children in EIP the largest proportion had a moderate or severe expressive language problem (34.3%) followed by gross motor (32.4%) and fine motor (27.9%) problems.

CHILDREN DISCHARGED FROM EARLY INTERVENTION PROGRAMS

During fiscal year 1990 3,026 children were discharged from EIP. Of these children 1,847 (64.7%) were discharged because they were three years of age or because they had no further service needs and over 500 of them (18.8%) were referred at discharge to mainstream child care, in either a nursery school or day care program or were in the care of their parents. Among the 3,026 children discharged from Early Intervention Programs the mean length of active participation was 16.9 months. However, the distribution of length of active participation in Early Intervention Programs indicates that most children (56.4%) received services for more than a year and 27.2 percent were in Early Intervention Programs for more than two years.

INTRODUCTION

Historical Background

Massachusetts has supported early intervention and similar services since the early 1970s, when a statewide system of Clinical Nursery Schools was established to provide multidisciplinary services for very young children with disabilities. Originally, these services focused on children aged three to five. Chapter 766, the Special Education law, was passed in 1976 and schools took on the responsibility for children aged three and older. The Clinical Nursery schools became Early Intervention Programs (EIP) and focused exclusively on children ages birth to three and their families.

The Department of Public Health (DPH) entered the early intervention field by contributing to the funding of several new Early Intervention Programs. At the same time programs operated by other agencies began to experience funding instability; uncertainty arose about the institutional base for Early Intervention Programs.

In 1980 early intervention providers, parents, and involved state agencies were convened to look at the current status of EIP services. At the same time, the Developmental Disabilities Council funded a study of the EIP system in response to the concern about the services available to young children. In 1981 a legislative task force was formed. This task force made a series of recommendations that were passed into Massachusetts General Law as Chapter 111G in 1982. Key points in 111G included: (1) designation of the Department of Public Health as the lead agency for EIP services, with responsibility and authority to regulate EIP services and EIP funding; (2) establishment of a permanent Early Intervention Advisory Committee, consisting of parents, providers, and representatives from state agencies; and (3) mandated participation of the Massachusetts Medicaid program in the support of EIP services.

In the years immediately following the Department promulgated uniform standards for EIP services and introduced strategies to utilize Medicaid and other funds effectively. The Advisory Committee was established and joined with the Department in a cooperative effort to promote the growth of effective EIP services. In 1986 Congress passed P.L. 99-457, Part H, making many of the provisions of Chapter 111G national law. In addition, Part H introduced the concept of the Individual Family Service Plan which significantly broadened the individual educational plan concept. Part H laid out a five year planning period phasing in entitlement to services for all

eligible children. The Department of Public Health continues to be the designated lead agency for EIP services under this act and the Early Intervention Advisory Committee serves as the required Interagency Coordinating Council, under Part H.

During the period of this report, Early Intervention Programs were operated by the Division of Early Childhood of the Bureau of Parent, Child, and Adolescent Health (formerly the Division of Family Health Services). EIP efforts of the Bureau's and its Division of Early Childhood reflect the Surgeon General's goal of establishing a comprehensive, family-centered, community-based system of services to children with special health care needs, as well as the Part H mandate for a statewide, comprehensive, multidisciplinary, interagency, coordinated system of Early Intervention Program services.

Early Intervention Programs

Early Intervention Programs offer comprehensive and integrated developmental services, within the larger system of early childhood services provided by the Bureau of Parent, Child, and Adolescent Health. EIP services facilitate the developmental progress of children between the ages of birth and three years whose developmental patterns are atypical, or whose development is at serious risk to become atypical through the influence of certain biological or environmental factors. Early Intervention Programs are focused on the family unit, recognizing the crucial influence of the child's daily environment on his or her growth and development. Therefore, EIP staff work in partnership with individuals present in the child's natural environment, which may include settings other than the child's home. The program seeks to support and encourage the caregiver's growth toward independence in planning for the child's continuing and changing needs.

Program services include screening, assessment, home visits, center-based groups for children, parent groups, and individual center-based services for children and parents. Services are provided by staff educated and credentialed in the fields of developmental education, speech pathology, occupational therapy, physical therapy, social work, and nursing. All families work with a staff member who acts as case manager, helping them in gaining access to needed services not available through the EIP. EIP services are located throughout the state and serve children in all cities and towns in the Commonwealth. The EIP services are linked to several other services provided by DPH, such as the Women, Infants, and Children Supplemental Feeding Program (WIC), Community Health Centers, Adolescent Pregnancy and Parenting Programs, and Growth

and Nutrition programs. In addition, the EIP system is supported by a variety of contracts for technical assistance and training.

The Division of Early Childhood provides fixed route, round trip transportation services, and bus monitors to help drivers, when needed, for those families who would otherwise be unable to travel to Early Intervention Programs. For fiscal year 1990, the Division's transportation system provided over 70,000 trips to 2,000 families at 54 program sites across the Commonwealth. Services were initiated on Martha's Vineyard through the local Regional Transit Authority. A cooperative car seat loaner program with the Massachusetts Passenger Safety program in the Bureau's Division of School Age and Adolescent Health was developed and implemented in conjunction with the Montachusett Regional Transit Authority in Fitchburg.

During fiscal year 1990 approximately $17.1 million of public funds were expended for the provision of EIP services to 7,421 children and families. The cost per child was under $2,400. Funds were drawn from the sources shown in Table 1 below.

Table 1

Funding Sources for Massachusetts Early Intervention Programs Massachusetts Fiscal Year 1990

Source of Funding	Amount of Funding
State appropriation for purchased services	$ 6,700,000
State appropriation supporting direct service staff	1,400,000
State appropriation for transportation services	1,000,000
Federal 89-313 funds	2,571,000
Federal 99-457 direct service funds	1,400,000
Federal MCH (Title V) funds	70,000
State/Federal Medicaid funds (approximate)	4,000,000
TOTAL	$17,141,000

EARLY INTERVENTION PROGRAM CLIENT DATABASE

Data Collection

The Massachusetts Department of Public Health designed, implemented, and maintains the Early Intervention Program Client Database which assists in planning and monitoring Early Intervention Program services in Massachusetts. The Early Intervention Program Client Database focuses on data collection at two points in time--first, at the time of registration and second, when the child is discharged. The Early Intervention Program Client Database includes information that is collected by EIP staff based on examinations, interviews, medical records, and consultations:

- *Sociodemographic information:* sex, age, income, geographic area, public assistance, household composition, race, ancestry, and primary language spoken in the home
- *Diagnostic and clinical information:* reason for referral, physical health, developmental status, focus of treatment, and discharge status
- *Family characteristics:* parents' sociodemographic and economic status, size of family, and family resources
- *Service information:* type of services provided at the time of admission and discharge

This report presents the information that was collected about children and their families who were served by Early Intervention Programs during the fiscal year, 1990, from July 1, 1989 through June 30, 1990. It includes a description of the population of children served by Early Intervention Programs, their risks for developmental delay, and changes in their functional status. The report also contains a brief summary of trends in the data between fiscal years 1985 and 1990. Statewide birth data for children born in calendar year 1987, which provide the denominators for some statistics that characterize the EIP population, were derived from Birth Certificate data from January 1, 1987 through December 31, 1987. These data were more current and accurate than information form the 1980 Census.

Definition of Terms

PERCENT OF POVERTY

Percent of poverty was determined for each household using the 1990 standard topology from the Medical Assistance Income Standards established by the Federal Government. The percent of poverty calculation accounts for household income adjusted for household size. It is a measure of an individual family's income as a percent of the poverty level.

ESTABLISHED, BIOLOGICAL, AND ENVIRONMENTAL RISK

The three primary types of risk are defined conceptually here and in operational terms by the criteria in Figure 1.

Established Risk is applied to diagnosed disorders and conditions of known etiology that are expected to lead to varying degrees of developmental delay in affected infants and children.

Biological Risk is the presence of a documented history of prenatal, perinatal, neonatal or early developmental events or conditions suggestive of damage to the central nervous system which increase the probability of atypical development.

Environmental Risk is the presence of an environmental factor that may pose a serious threat to a child's development such as limited parental care, inadequate health care, poor nutrition, limited opportunities for expression of adaptive behaviors or a lack of physical and social stimulation.

Risk group criteria was recently revised in order to reflect the changes in the newly revised EIP registration and discharge forms. In addition, a new descriptive, Established Delay Only, was included to describe those children who could not be classified into a specified risk group but who did manifest moderate to severe delays in one or more developmental areas. Previously, many of these children had been classified as having an Established Risk. These changes in risk group more clearly reflect the information received from EIP programs and more accurately describe the "at risk" factors of the EIP children.

FUNCTIONAL STATUS

Data on a child's functional status in six areas is determined and collected by EIP staff at the time of entry into EIP and again at discharge. The six areas are: gross motor, fine motor, expressive language, receptive language, social/emotional, and cognitive functioning. Clinical judgement as well as standardized measures or instruments are relied upon to assess each of these six areas. The following guidelines were provided as instructions to clinicians to increase the consistency of these data across programs:

Based on months of delay, identify the category of delay for each functional area.

- 0 to 6 months delayed -- no or slight delay;
- 6 to 10 months delayed -- moderate delay;
- More than 10 months delayed -- severe delay;
- If unknown indicate this with the appropriate code ('9')

Figure 1
Criteria Used to Assign Children in Early Intervention Programs to Risk Groups and Percent of Children by Risk Group

ESTABLISHED RISK
11.6%

- Neuromuscular problem
- Congenital anomaly
- Vision problem
- Hearing problem
- Cerebral palsy
- Down's syndrome
- Hydrocephaly
- Microcephaly
- Spina bifida
- Head injury
- Autism
- Pervasive dev disorder
- Fetal alcohol syndrome
- Other diagnosis/syndrome

BIOLOGICAL RISK
12.0%

- Respiratory problem
- LBW (LT 1501 grams)
- Nutrition
- Very premature (LT 33 wks)
- Cardiac problem
- Seizure problem
- Failure-To-Thrive
- Kidney, Renal

ENVIRONMENTAL RISK
21.7%

- Mom 0-18 years old
- Mom 19+ yrs,0-11 yrs educ
- Birthweight 1501-2000 grms
- Open protective service case
- Parental support system
- Parental substance abuse
- Parental cognitive problem
- Parental emotional problem
- Parental attachment
- Parenting skills
- Limited/disabled in family
- Handicapped sibling
- Chronic illness in family
- Sensory impairmt in family
- Family crisis
- Homelessness

ESTABLISHED/ BIOLOGICAL
11.4%

ESTABLISHED/ ENVIRONMENTAL
6.5%

ENVIRONMENTAL/ BIOLOGICAL
10.1%

ESTABLISHED/ BIOLOGICAL ENVIRONMENTAL
10.6%

ESTABLISHED DELAY ONLY
9.0%

SOURCE: Early Intervention Program Data, FY 1990, Bureau of Parent, Child, and Adolescent Health, Dept of Public Health

Limitations of the Data

The Early Intervention Program Client Database represents only those children served in Early Intervention Programs certified by DPH. Therefore, it is not representative of all children in Massachusetts receiving EIP services or of children who are in need of services. Children who are on waiting lists for Early Intervention Programs at one of the DPH programs are not registered until they actually begin receiving services. The Early Intervention Program Client Database also excludes children whose parents do not want a form submitted to DPH, but based on anecdotal information from programs this is a small number of cases.

There has been much interest in and importance placed on the issue of access to Early Intervention Programs. While the dates of referral and admission coded on the Early Intervention Program registration form are an imperfect measure of timely access, these data are valuable when examined over time to discern trends. The referral date indicates the day the child first came to the attention of the EIP staff. The date of admission is the first day that services were delivered after screening was completed.

CHARACTERISTICS OF CHILDREN IN EARLY INTERVENTION PROGRAMS

Overview

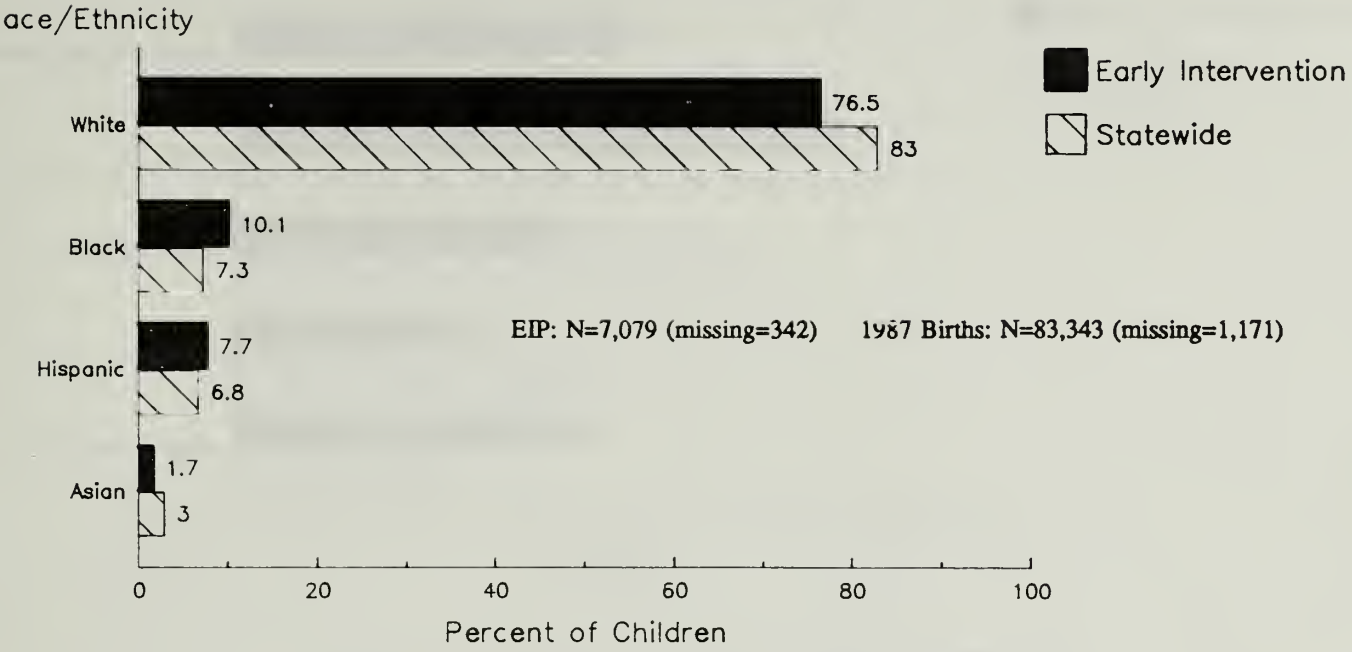
During fiscal year 1990 7,421 children and their families were served by the forty-four Early Intervention Programs supported by the Department of Public Health. These children comprise three percent of all children age birth to three in Massachusetts and an estimated thirty percent of the children estimated to be eligible for services (based on estimates from the "Early Intervention Needs Assessment," MDPH, September 1989). The number of children enrolled in individual Early Intervention Programs ranged from 12 to 383, with an average of 169 children served per program. The number of active clients at any one time based on the client count as of December 1, 1989, which is the date used for federal reporting, was 4,395 children. There were 3,169 admissions and 3,026 discharges during fiscal year 1990. The average length of active participation was 16.9 months, and 27.2 percent stayed in Early Intervention for over two years.

Sociodemographic Characteristics

The sociodemographic characteristics of children enrolled in Early Intervention Programs in fiscal year 1990 were compared with the statewide population of children born in calendar year 1987. This comparison demonstrates a very similar distribution of race/ethnicity between the EIP population and the statewide population (Figure 2). EIP's tended to have more male children (58.1%) than the state as a whole (51.4%) (Figure 3).

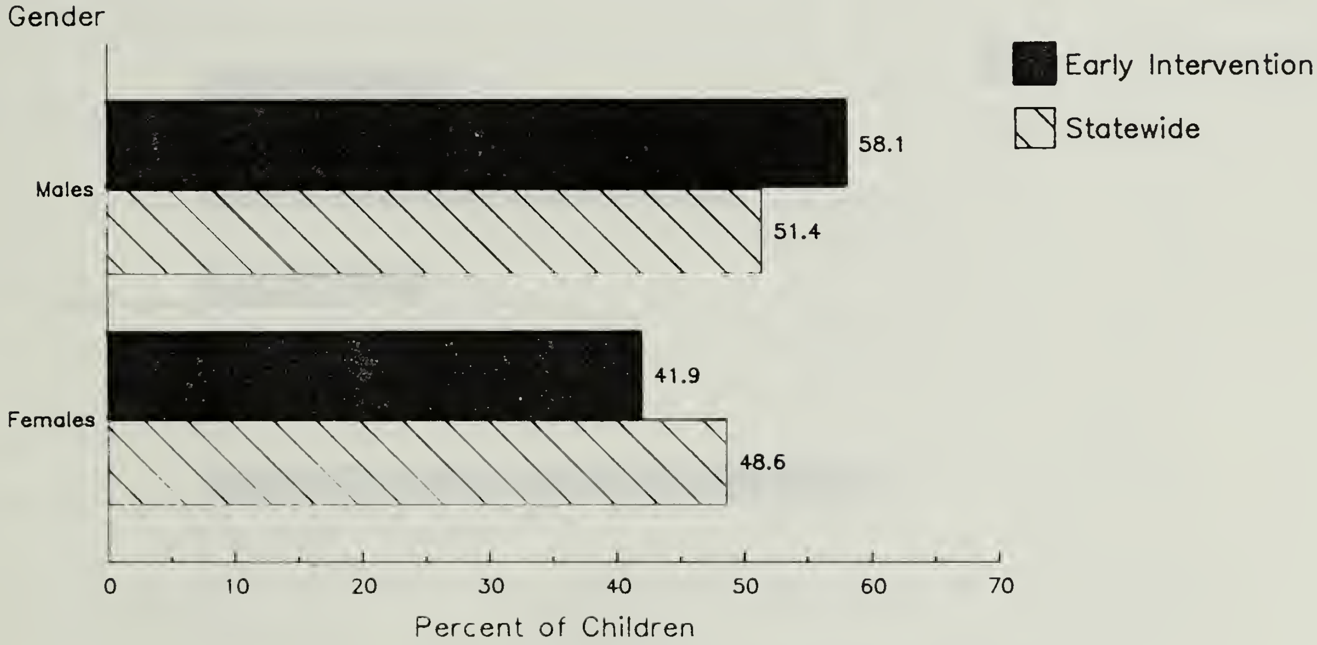
When compared to the statewide population, there was a tendency for mothers in the EIP population to be either younger than 20 or older than 34 years. This would be expected since being a teenage mother is an environmental risk factor and maternal age 35 and older is correlated with some diagnoses that are established risks for developmental delay. A higher proportion of mothers in the EIP population than the general population had not completed high school, which is an environmental risk factor (Figure 4). A higher proportion of EIP mothers also completed 17 or more years of education. A similar pattern is evident in Figure 5 for fathers' education.

Figure 2: Distribution of Race/Ethnicity Among Children in Early Intervention Programs and Statewide



EIP: N=7,079 (missing=342)   1987 Births: N=83,343 (missing=1,171)

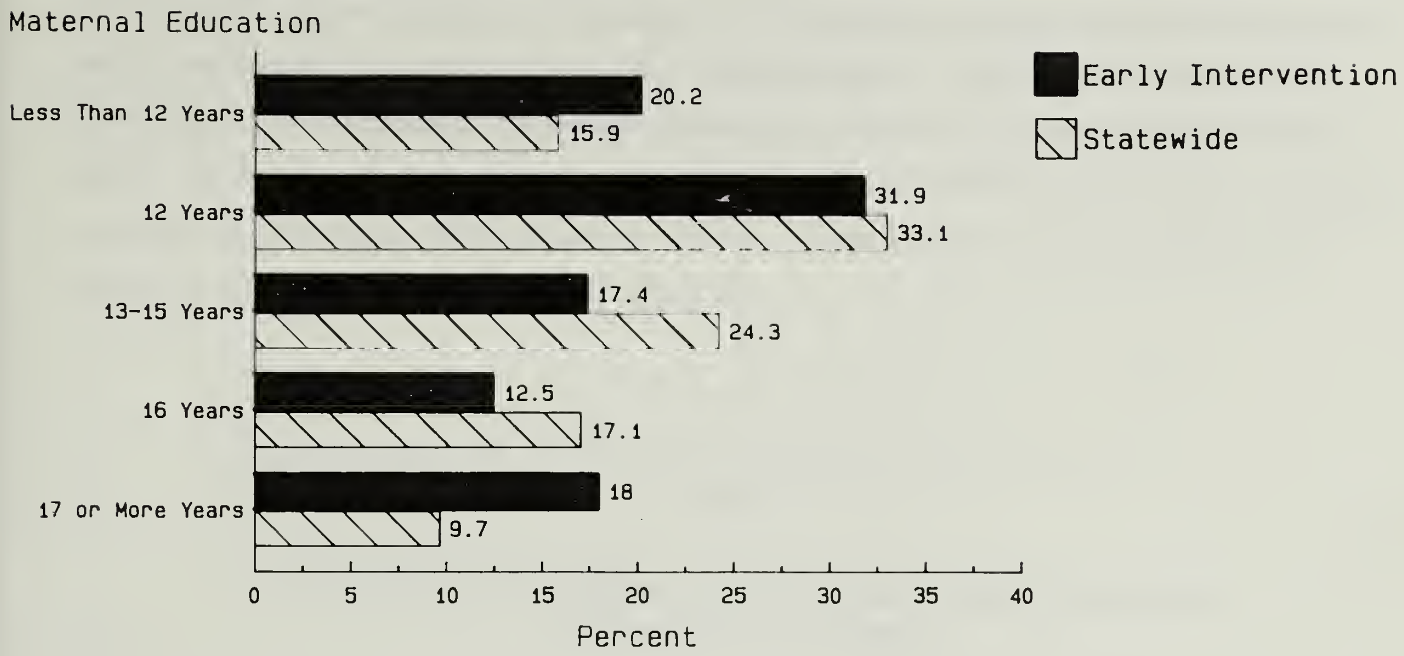
Figure 3: Distribution of Gender Among Children in Early Intervention Programs and Statewide



EIP: N=7,380 (missing=41)   1987 Births: N=84,514

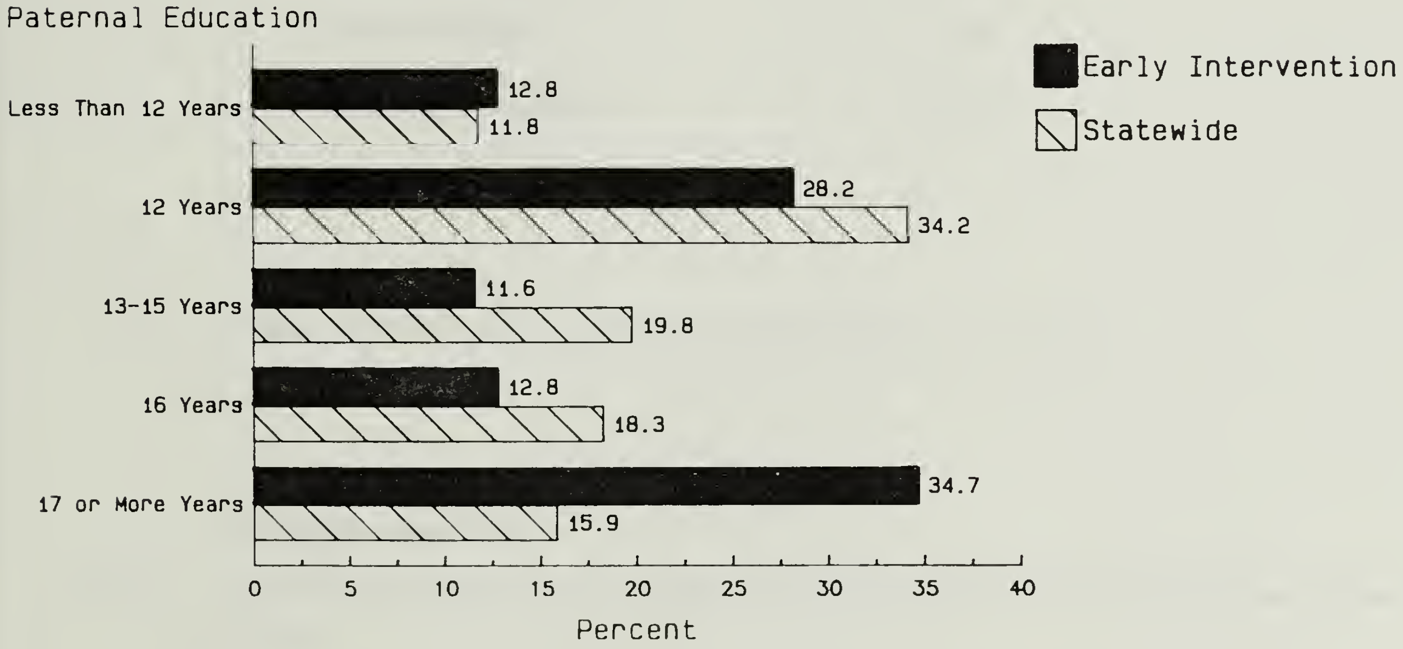
SOURCE: Early Intervention Program Data, FY 1990, Bureau of Parent, Child, and Adolescent Health, Dept of Public Health; Vital Statistics Birth Data 1987

Figure 4: Distribution of Maternal Education in Early Intervention Programs and Statewide



EIP: N=7,387 (missing=34) 1987 Births: N=80,885 (missing=3,629)

Figure 5: Distribution of Paternal Education in Early Intervention Programs and Statewide



EIP: N=7,185 (missing=236) 1987 Births: N=70,995 (missing=13,519)

SOURCE: Early Intervention Program Data, FY 1990, Bureau of Parent, Child, and Adolescent Health, Dept of Public Health; Vital Statistics Birth Data 1987

All children in Massachusetts who are at risk of developmental delay are eligible for Early Intervention Programs regardless of income level. Nevertheless, the issue of access to services for low-income families is of concern for publicly funded programs. This analysis examines the distribution of socio-economic-status (SES), measured as a percent of poverty, within the Early Intervention Programs' client population. Most of the children in EIP for whom percent of poverty is known are living below 200% of poverty (59.0%). Table 2 shows that 38.6 percent of the children in EIP were living below 100% of poverty.

Table 2

Distribution of Families in Early Intervention Programs by Percent of Poverty

Percent of Poverty	Percent of Families
Less Than 100%	38.6
100% to 200%	20.4
201% to 300%	18.4
Greater Than 300%	22.6

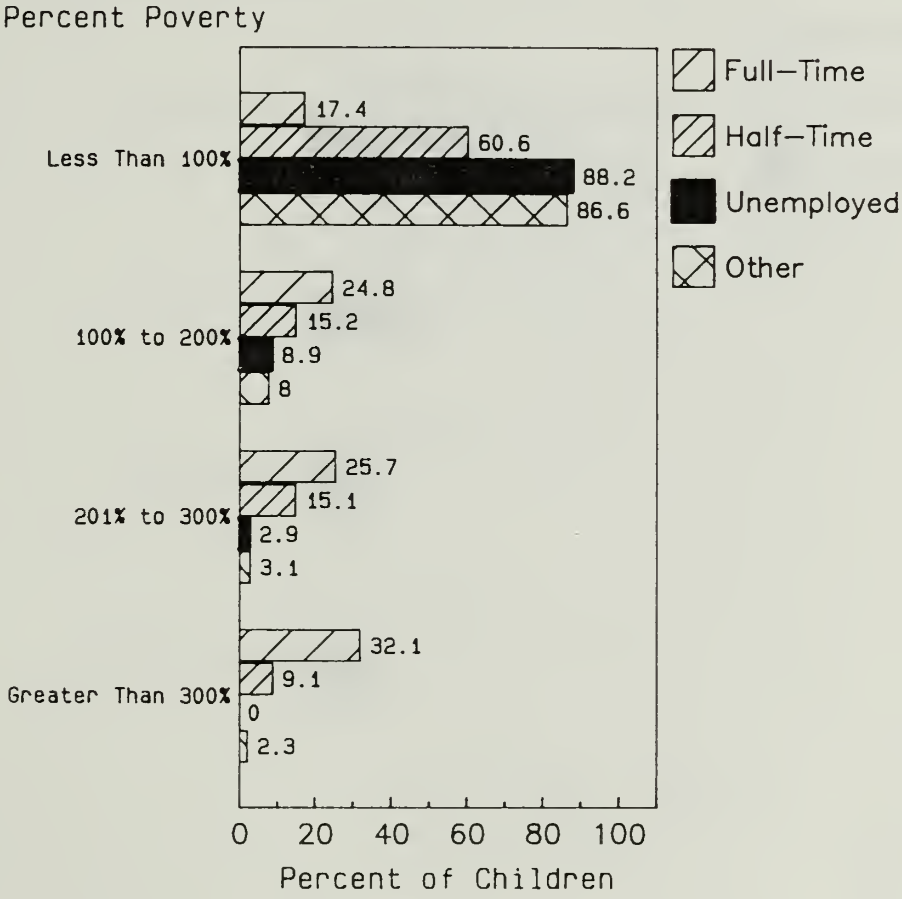
Note: 100% of poverty (1990) for a family of four = $ 13,400

N=5,082 (missing=2,339)

SOURCE: Early Intervention Program Data, FY 1990, Bureau of Parent, Child, and Adolescent Health, Dept of Public Health

Another 20.4 percent were living in families with incomes between 100% and 200% of poverty. As expected, a high proportion of unemployed parents (88.2%) were in the less than 100% of poverty group (Figure 6). In addition, 44.4 percent of the families with at least one full-time income and 27.2 percent of the families with two full-time incomes were at or below 200% of poverty.

Figure 6: Employment Status of Early Intervention Program Families by Percent of Poverty

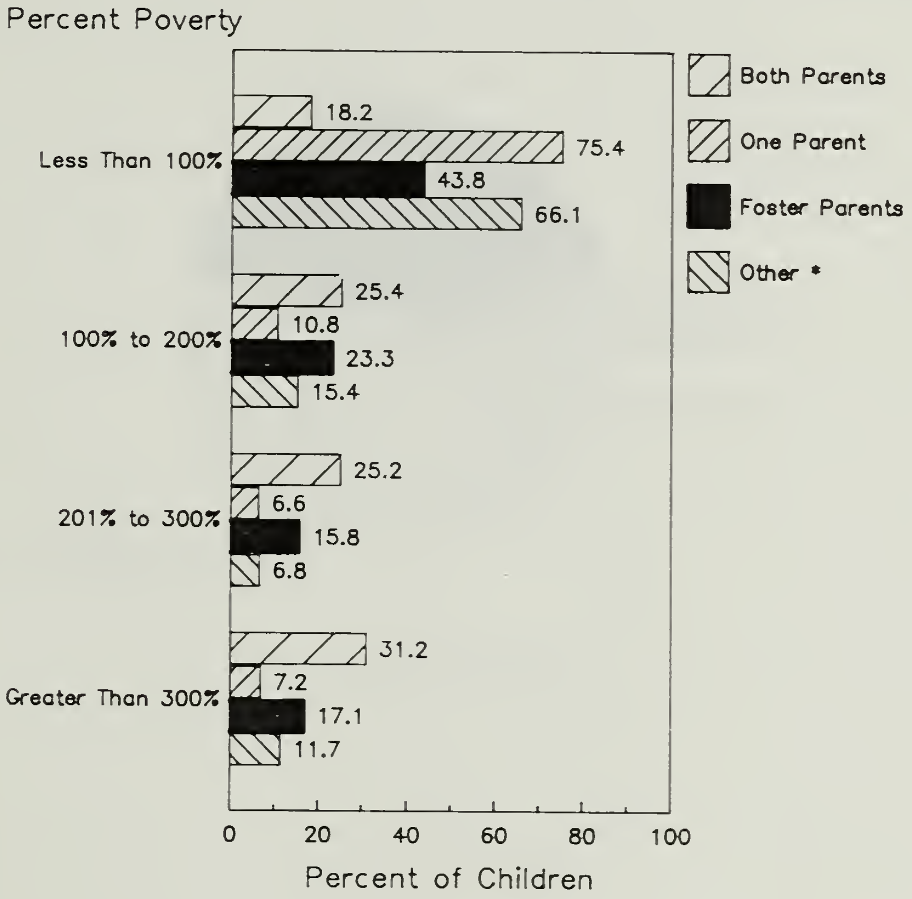


N=4,485 (missing=2,936)

SOURCE: Early Intervention Program Data, FY 1990, Bureau of Parent, Child, and Adolescent Health, Dept of Public Health

The association between poverty and employment status was reflected in differences between single parent households (N=1,614), 75.4 percent of which lived below 100% of poverty, and two parent households (N=3,159), of which 18.2 percent lived below 100% of poverty (Figure 7). In addition, a high percentage of the 146 children in foster care (43.8%) were living below 100% of poverty with an additional 23.3 percent of the children in foster care families living between 100% and 200% of poverty.

Figure 7: Person(s) with Responsibility for Early Intervention Program Children by Percent of Poverty



* Other refers to Grandparents, Legal Guardians, other caregivers

N=5,081 (missing=2,340)

SOURCE: Early Intervention Program Data, FY 1990, Bureau of Parent, Child, and Adolescent Health, Dept of Public Health

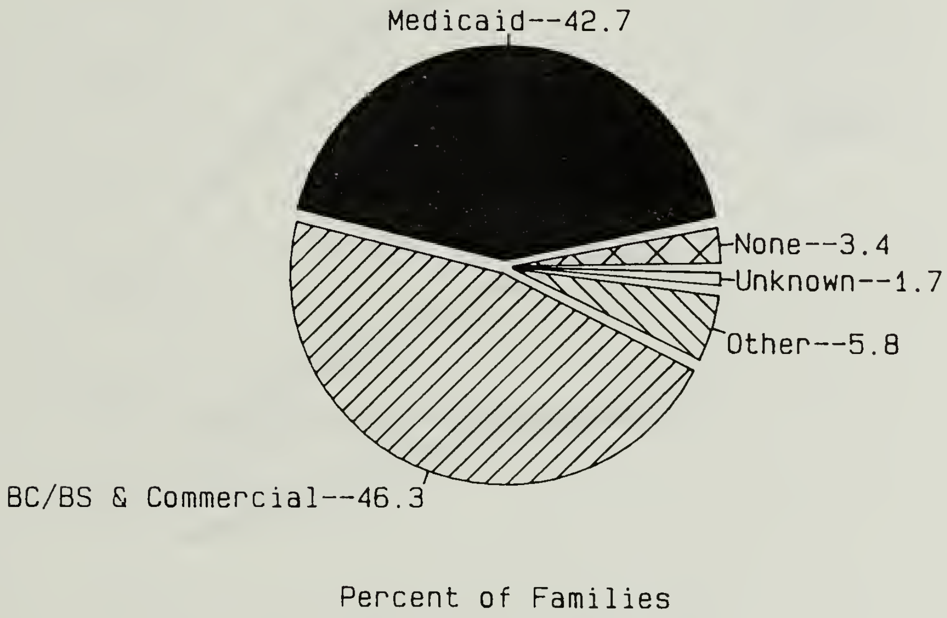
[illegible]

[illegible]

[illegible]

The largest proportion of families in EIP have commercial insurance coverage (46.3%). The next largest proportion of clients are covered by Medicaid (42.7%) and a small proportion of families (3.4%) have no insurance (Figure 8).

Figure 8: Insurance Carriers Among Early Intervention Program Children and Their Families



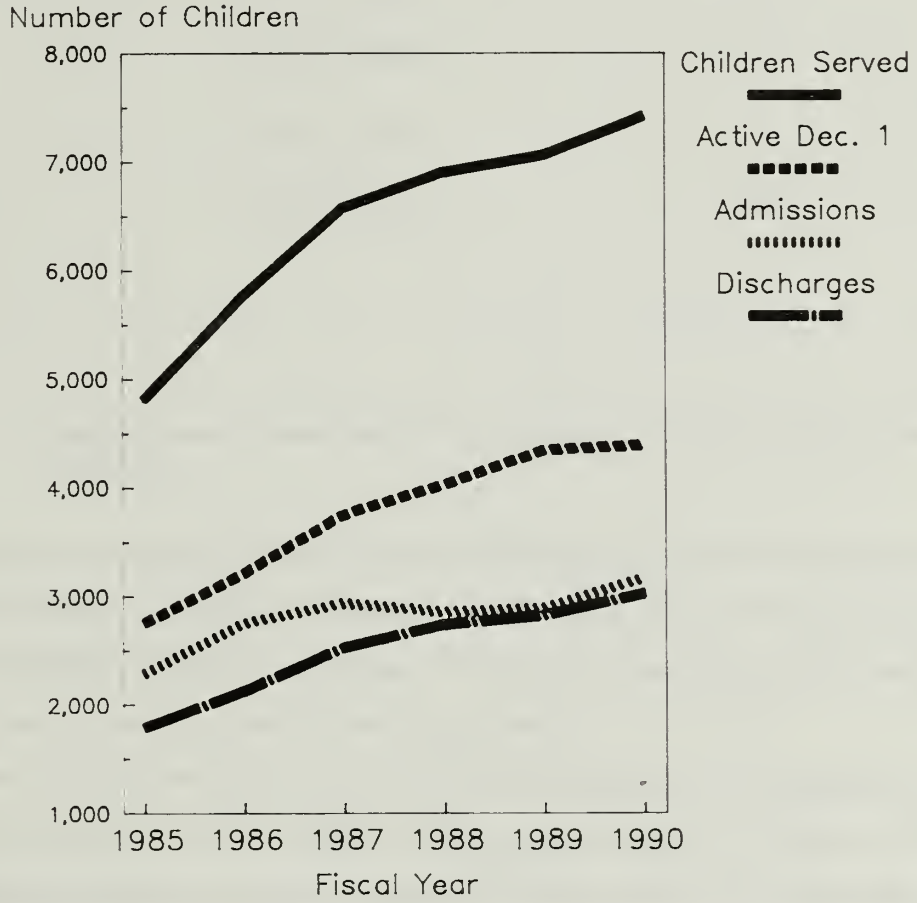
N=7,341 (missing=80)

SOURCE: Early Intervention Program Data, FY 1990, Bureau of Parent, Child, and Adolescent Health, Dept of Public Health

Trends in Early Intervention Program Clients

The number of EIP recipients have clearly expanded since 1985. The number of children served has increased from less than 5,000 in 1985 to over 7,400 children in 1990 (Figure 9). However, as Table 3 demonstrates, the number of children served appears to be increasing at a slower but stable rate from 1987 to 1990.

Figure 9: Children Served by Early Intervention Programs in Fiscal Years 1985 to 1990



Fiscal Year	1985	1986	1987	1988	1989	1990
Children Served	4,811	5,771	6,582	6,907	7,066	7,421
Active Dec. 1	2,755	3,213	3,760	4,032	4,350	4,395
Admissions	2,289	2,756	2,942	2,856	2,893	3,169
Discharges	1,796	2,131	2,532	2,746	2,830	3,026

SOURCE: Early Intervention Program Data, FY 1985-1990, Bureau of Parent, Child, and Adolescent Health, Dept of Public Health

Table 3

Percent Increase in the Number of Early Intervention Program Clients Served From One Fiscal Year to the Next

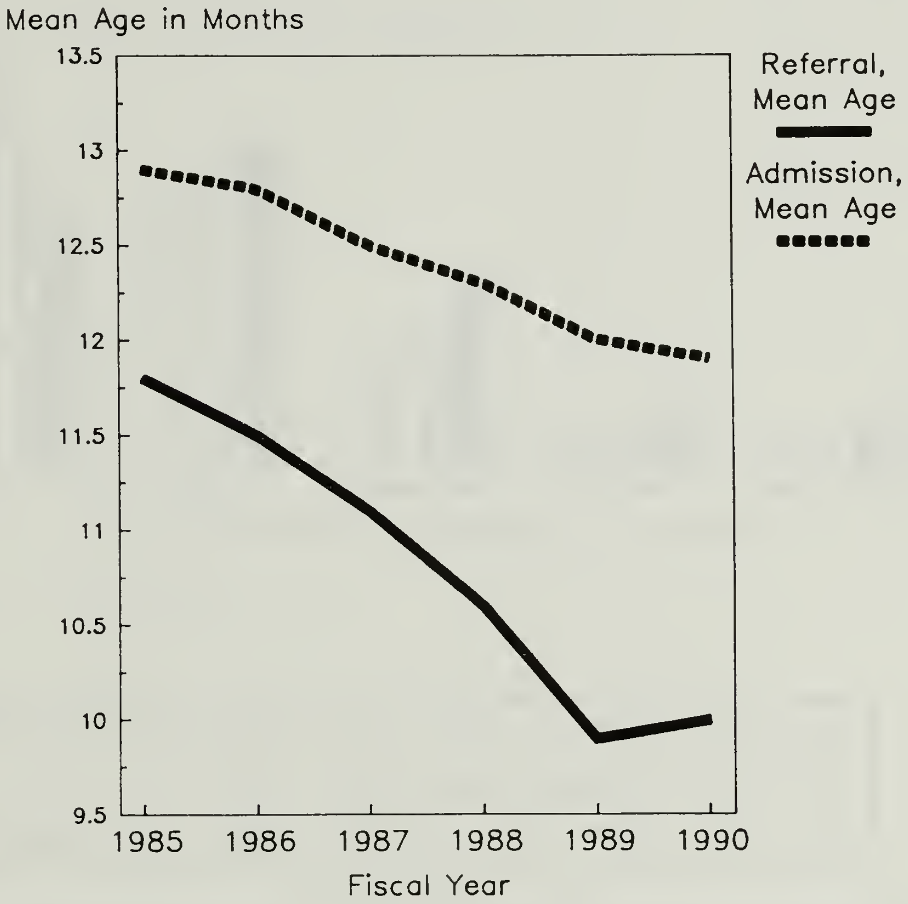
Fiscal Years	Percent Increase
1985 - 1986	20.0
1986 - 1987	14.1
1987 - 1988	4.9
1988 - 1989	2.3
1989 - 1990	4.8

SOURCE: Early Intervention Program Data, FY 1985-1990, Bureau of Parent, Child, and Adolescent Health, Dept of Public Health

A goal of the Bureau is for eligible children to be identified and referred to Early Intervention Programs as early as possible. As the data in Figure 10 suggest gains have been made in referring children to EIP at younger ages. Admissions have also been occurring at a younger mean age over the course of the six year period studied.

While children overall are being referred and admitted at a younger age, the time between referral and admission has been steadily increasing over the past six years. As Figure 11 demonstrates, the percent of children admitted within one month of referral has decreased over the six years. Further, each year, except for 1990, Early Intervention Programs have admitted an increasing number of children more than two months after referral. This widening gap is due to an increase in the number of referrals and an increase in referrals at younger ages, which result in longer stays in service. The decreasing percent of children admitted within one month of referral is a concern of DPH and all EIP providers.

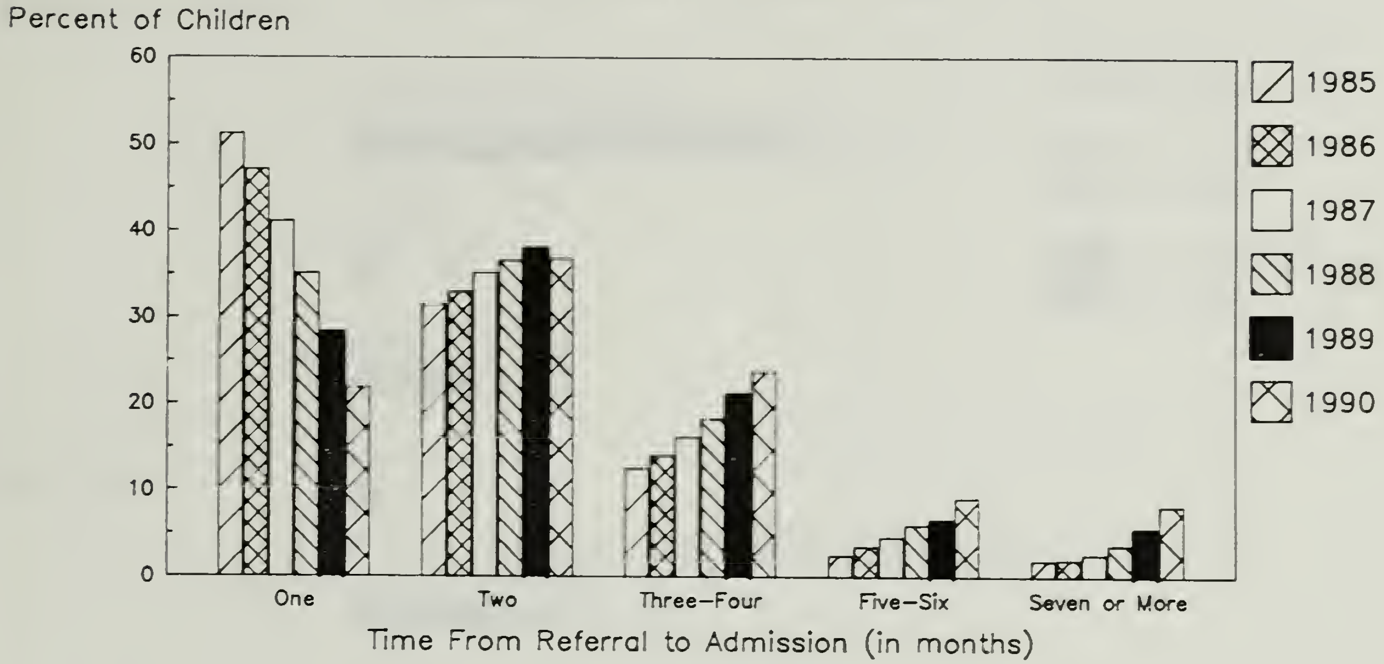
Figure 10: Mean Age at Referral and at Admission to Early Intervention Programs by Fiscal Year



Fiscal Year	1985	1986	1987	1988	1989	1990
N =	4,745	5,688	6,489	6,828	6,974	7,332
missing =	66	83	84	79	92	89

SOURCE: Early Intervention Program Data, FY 1985-1990, Bureau of Parent, Child, and Adolescent Health, Dept of Public Health

Figure 11: Time From Referral to Admission into an Early Intervention Program In Months by Fiscal Year



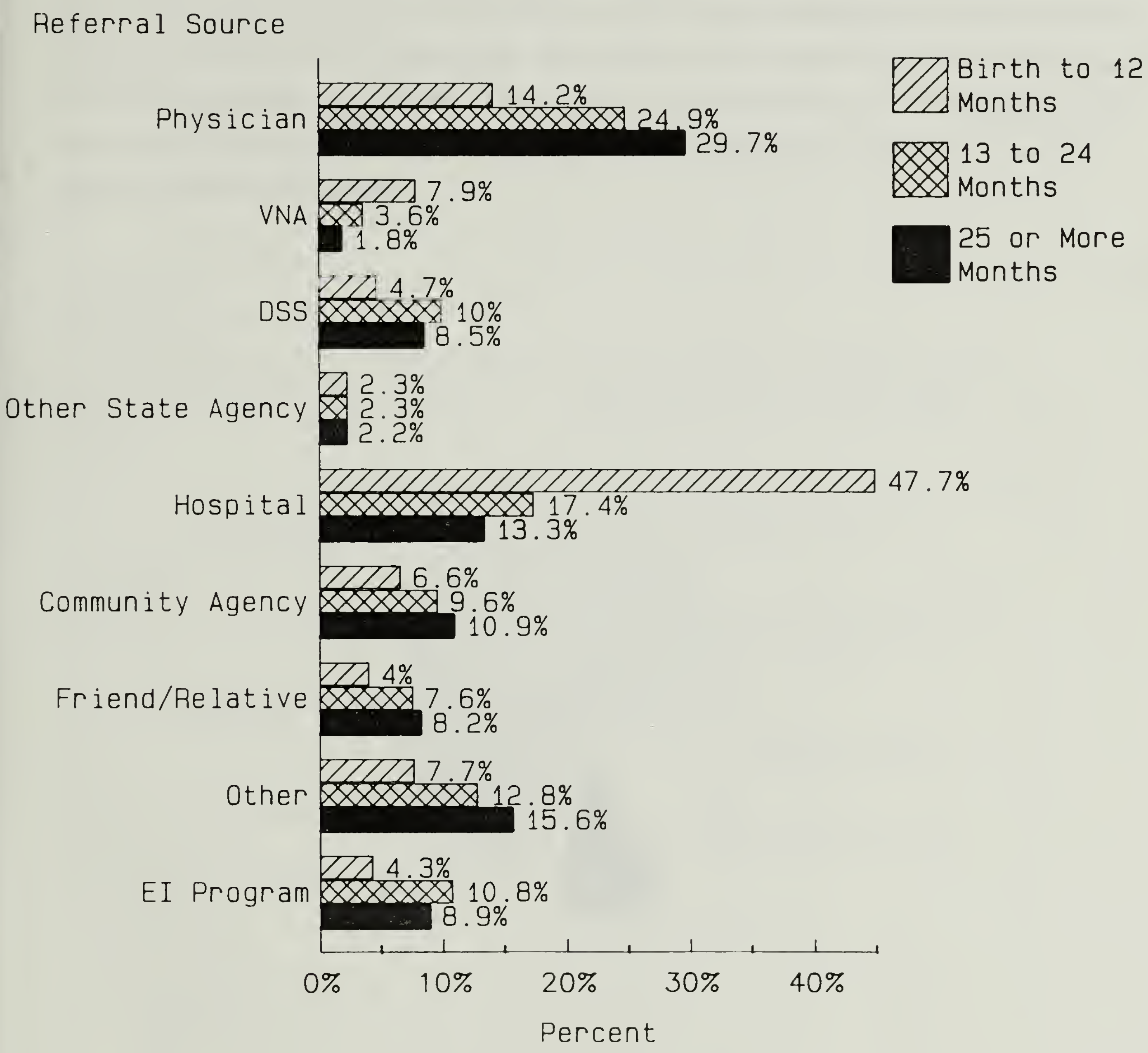
Fiscal Year	1985	1986	1987	1988	1989	1990
N =	4,745	5,688	6,489	6,828	6,974	7,371
missing =	66	83	84	79	92	50

SOURCE: Early Intervention Program Data, FY 1985-1990, Bureau of Parent, Child, and Adolescent Health, Dept of Public Health

Referral Patterns

The distribution of referral sources to Early Intervention Programs changes as children grow older. The bar chart in Figure 12 shows that hospitals are responsible for the largest proportion of referrals among 0 to 12 month old children, while the primary care physician becomes the single most frequent referral source after the age of one year.

Figure 12: Percent of Children by Age and Source of Referral to Early Intervention Programs



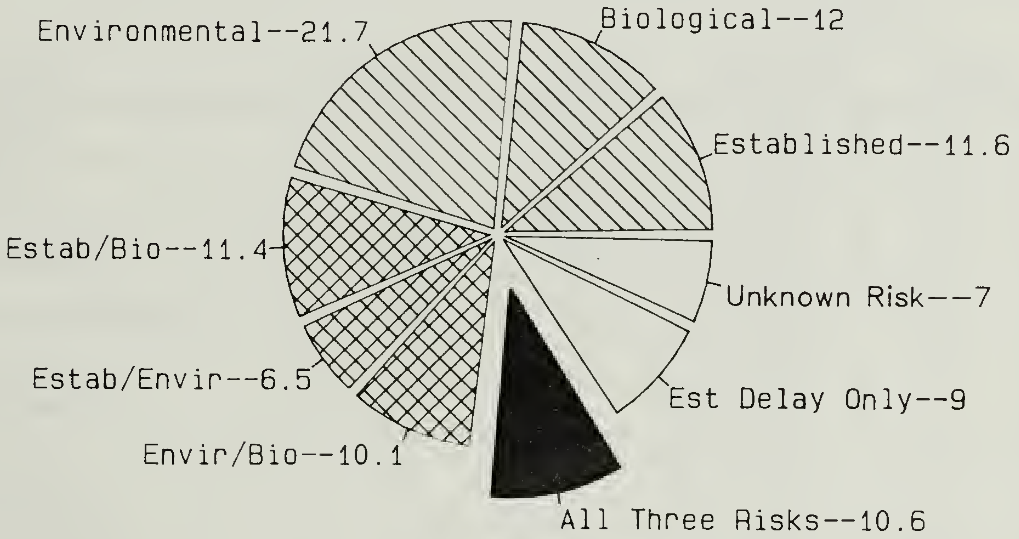
N=7,374 (missing=47)

SOURCE: Early Intervention Program Data, FY 1990, Bureau of Parent, Child, and Adolescent Health, Dept of Public Health

Risk of Developmental Delay

Three major risk categories, established, biological, and environmental are used to describe the factors that place children at risk for developmental delay (see Figure 1). The category of established delay only describes those children who do not have an established, biological or environmental risk, but they do manifest moderate to severe delays in one or more developmental area. In fiscal year 1990, 40.2% of the children in EIP were at established risk for developmental delay, 44.2 percent were at biological risk, 48.9 percent were at environmental risk, and 9.0 percent had established delays only. Figure 13 and Table 4 show the distribution of EIP children by risk group; they include the three primary risk categories, four categories of multiple risk, and the established delay only category.

Figure 13: Distribution of Risks Among the Children in Early Intervention Programs



N=7,421

SOURCE: Early Intervention Program Data, FY 1990, Bureau of Parent, Child, and Adolescent Health, Dept of Public Health

There were 2,867 children who were classified into more than one of the three risk categories (38.6%), 2,079 of whom were in two risk categories and 788 of whom had all three risks. There were 3,364 (45.3%) children identified as meeting the criteria for only one of the three risks.

ESTABLISHED RISK

Established risk refers to diagnosed disorders and conditions that are expected to lead to developmental delay among affected infants and children, such as a neuromuscular problem, congenital abnormality, vision or hearing problem, cerebral palsy, Down's syndrome, spina bifida, head injury, or autism. Fourteen criteria were used to identify children who were at established risk. Among the population of children who received services in fiscal year 1990 2,980 (40.2%) were at established risk for developmental delay. Of these, 1,773 (59.5%) met a single criterion. Among the remaining children, 757 (25.4%) met two criteria, 255 (8.6%) met three criteria and 195 (6.5%) met four or more criteria.

Table 4

Children in Early Intervention Programs by Risk Group

Risk Group	Frequency	Percent	Cumulative Frequency	Cumulative Percent
Established	864	11.6	864	11.6
Biological	892	12.0	1,756	23.7
Environmental	1,608	21.7	3,364	45.3
Established/Biological	846	11.4	4,210	56.7
Established/ Environmental	482	6.5	4,692	63.2
Biological/ Environmental	751	10.1	5,443	73.3
All Risk Factors	788	10.6	6,231	84.0
Established Delay Only	671	9.0	6,902	93.0
No Risk Category Classification	519	7.0	7,421	100.0

SOURCE: Early Intervention Program Data, FY 1990, Bureau of Parent, Child, and Adolescent Health, Dept of Public Health

BIOLOGICAL RISK

Biological risk indicates the presence of a prenatal, perinatal, neonatal or early developmental event or condition suggestive of damage to the central nervous system such as a respiratory problem, low birth weight, cardiac problem, or seizure problem that increases the probability of atypical development. Eight criteria were used to identify children who were at biological risk. The total number of children at biological risk was 3,277 (44.2%). Of these 3,277 children 1,602 (48.9%) met a single criterion, 995 (30.4%) met two, 460 (14.0%) met three, and 220 (6.7%) met four or more criteria. These children were, more often than not, also at established or environmental risk.

ENVIRONMENTAL RISK

Environmental risk indicates the presence of two or more environmental factors that may pose a serious threat to a child's development such as limited parental care, inadequate health care, poor nutrition, limited opportunities for expression of adaptive behaviors or a lack of physical and social stimulation. Sixteen criteria were used to identify children who were at environmental risk. The total number of children at environmental risk was 3,629 (48.9%). Among the children identified as environmentally at risk 1,070 (29.5%) met two of the sixteen criteria, 767 (21.1%) met three, and 1,792 (49.4%) met four or more criteria. The environmentally at risk population of children was the single largest group, but again, most children also had either an established and/or a biological risk.

ESTABLISHED DELAY ONLY

Established delay only indicates the presence of a moderate to severe delay in one or more developmental areas. These developmental areas include gross motor, fine motor, expressive language, receptive language, cognitive, and social/emotional functioning. The total number of children in EIP with an established delay only was 671 (9.0%).

NO RISK CLASSIFICATION

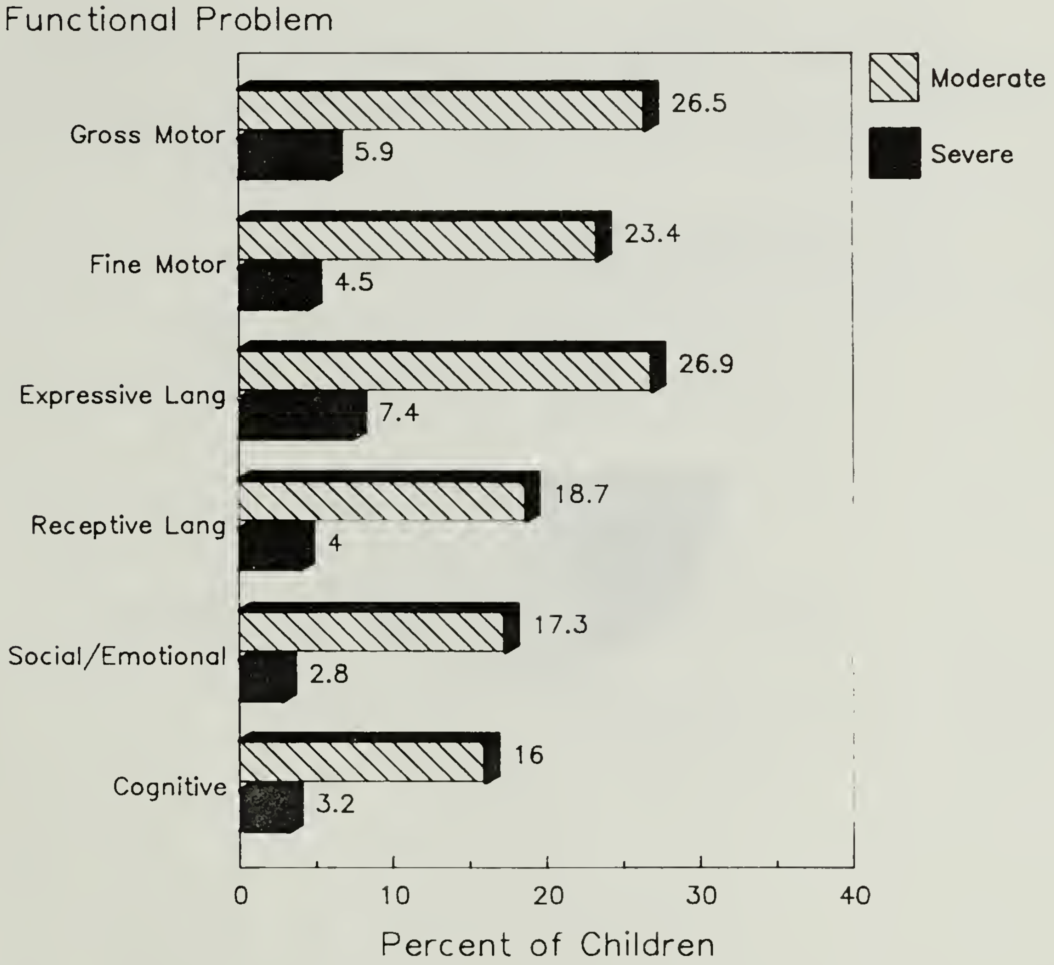
There was also a group where no risk category classification could be made based on the data used as criteria in this analysis. Further analysis of the Early Intervention Programs Client Database on this group of children showed that these children had some medical, environmental or developmental delays or concerns. Some of the others who remain unclassified are those children who have been drug affected. For confidentiality reasons these numbers are unavailable.

Note: The cumulative percentage of children at established (40.2%), biological (44.2%), and environmental (48.9%) risk is greater then 100 percent because most children have more than one risk.

Functional Problems

Data describing severity of delay were collected on the following functional areas for the children in Early Intervention Programs: gross motor, fine motor, expressive language, receptive language, social/emotional, and cognitive functioning. As the data in Figure 14 show, the largest proportion of children had expressive language problems (34.3%) followed by gross motor (32.4%) and fine motor problems (27.9%).

Figure 14: Percent of Children in Early Intervention Programs with Specific Moderate and Severe Functional Problems

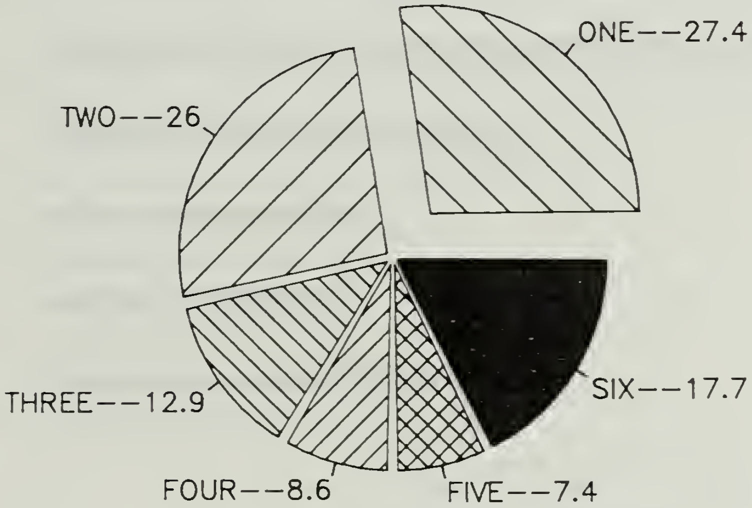


N=7,316 (missing=105)

SOURCE: Early Intervention Program Data, FY 1990, Bureau of Parent, Child, and Adolescent Health, Dept of Public Health

At the time of admission, 52.3 percent of the children in Early Intervention Programs had a moderate or severe delay in at least one of these functional areas. Of these children, 27.4 percent had moderate to severe delays in only one functional area, and 26.0 percent were moderately to severely delayed in two functional areas (Figure 15). Almost half (46.6%) of these children had three or more functional delays.

Figure 15: Percent of Children in Early Intervention Programs with One to Six Moderate and/or Severe Functional Problems



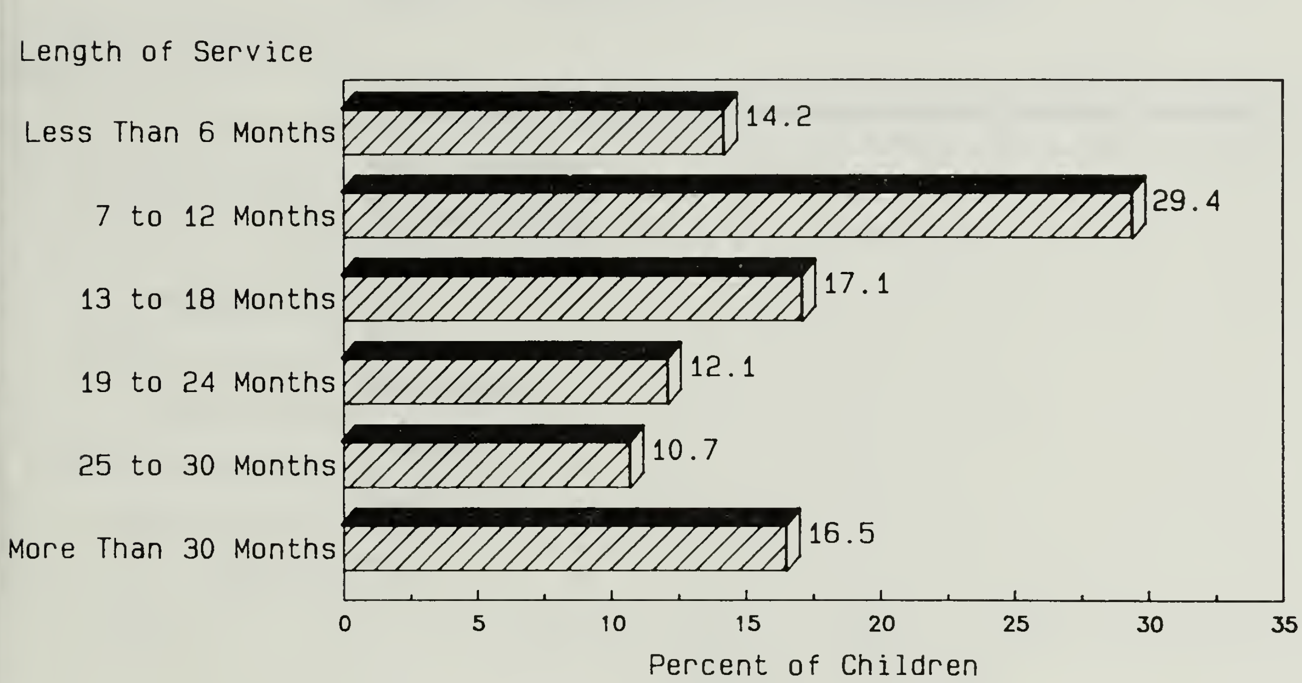
N=3,880

SOURCE: Early Intervention Program Data, FY 1990, Bureau of Parent, Child, and Adolescent Health, Dept of Public Health

Children Discharged from Early Intervention

During fiscal year 1990 3,026 children were discharged from Early Intervention Programs. The mean length of active participation in Early Intervention Programs for children discharged in fiscal year 1990 was 16.9 months. However, the distribution of length of active service in Early Intervention Programs, as shown in Figure 16, indicates that most children (56.4%) received services for more than a year and 27.2 percent were in Early Intervention Programs for more than two years.

Figure 16: Length of Service to Children in Early Intervention Programs

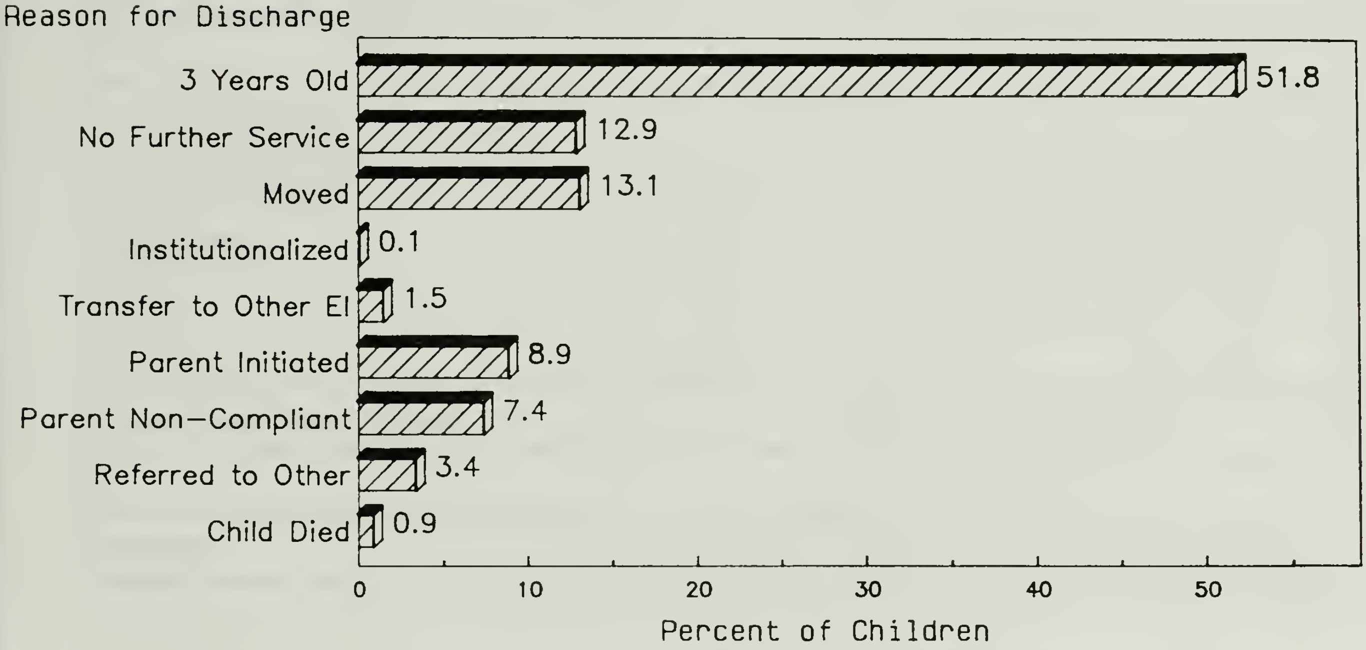


N=3,026

SOURCE: Early Intervention Program Data, FY 1990, Bureau of Parent, Child, and Adolescent Health, Dept of Public Health

As the data in Figure 17 show, more than half the children (51.8%) were discharged because they had reached the age of three years, and over 10 percent of the children discharged had no further service requirements. The children discharged at three years of age or because they had no further service needs were further examined by risk status and referral in Table 5. These data show that over 500 (18.8%) of the 3,026 children discharged were placed in the mainstream of child care, either to a nursery school, day care program or their parents.

Figure 17: Reason for Discharge from Early Intervention Programs



N=3,007 (missing=19)

SOURCE: Early Intervention Program Data, FY 1990, Bureau of Parent, Child, and Adolescent Health, Dept of Public Health

Table 5

Referrals from Early Intervention Programs: Children Discharged at Age Three Years or Because No Further Service Was Indicated

	Risk Groups		
Referral	Established or Biological	Environmental Only	All Risk Groups *
NO FURTHER CARE REQUIRED			
Day Care/Nursery School +	91 (8.0%)	65 (17.0%)	180 (9.7%)
Parents, No Service +	233 (20.4)	70 (18.3)	388 (21.0)
No Further Care: Subtotal	324	135	568
CONTINUING CARE REQUIRED			
School LEA/SPED	718 (62.9)	155 (40.5)	1,068 (57.8)
Headstart	61 (5.3)	56 (14.6)	131 (7.1)
DSS	10 (0.9)	20 (5.2)	31 (1.7)
Other	29 (2.5)	17 (4.4)	49 (2.7)
Continuing Care: Subtotal	818	248	1,279
TOTAL	1,142 (100.0%)	383 (100.0%)	1,847 (100.0%)

+ Only children who were referred exclusively to these three categories and not to any other referral source were included in the subtotal of 568 cases. This was done because any other type of referral would indicate a need for further special care.

* The numbers in this Column are larger than the sum of their respective rows because they include 195 cases from the "established delay only" and "no risk group" classifications discussed earlier.

SOURCE: Early Intervention Program Data, FY 1990, Bureau of Parent, Child, and Adolescent Health, Dept of Public Health

SUMMARY

Delivering Early Intervention Program Services

The MDPH currently provides financial support to forty-four Early Intervention Programs that serve children and families in Massachusetts. Early Intervention Programs (EIP) focus exclusively on children ages birth to three and their families. These programs are certified by DPH's Division of Early Childhood and operate with ongoing monitoring from the Division's staff. Programs are funded through a request for proposals (RFP) process which takes place every five years. Continuous interaction between DPH and individual programs supports the delivery of EIP services after programs have been funded. The EIP are also represented on the Interagency Coordination Council (DPH's Early Intervention Advisory Committee), which meets bimonthly and advises the Department on issues that affect EIP services. The administrative, fiscal, and advisory structures that support EIP services provide mechanisms for communication about programmatic as well as policy issues.

The multidisciplinary services that include therapeutic, educational, and social services facilitate the developmental progress of children directly and indirectly through work with parents and other caregivers in the child's environment. The service delivery system in Massachusetts is committed to an approach that encompasses the child's environment and supports both the child and the caregivers who influence the child's growth.

The number of children served by EIP between fiscal years 1985 and 1990 grew steadily from 4,811 to 7,421 per year. However, the percent increase from year to year over this six year period has slowed from 20.0 percent to 4.8 percent, which indicates that the rate of program expansion decreased over time. The number of admissions was consistently higher than the number of discharges during this period. During the most recent years, the number of admissions has been only slightly higher than the number of discharges; in 1985 there were 493 more admissions than discharges and by 1990 there were 143 more admissions than discharges. This suggests that efforts to enroll children have successfully taken place and that EIP programs are consistently operating at or near current capacity.

The distribution of childrens' ages at time of referral over this six year period shows that an increasing proportion of children were referred prior to 4 months of age. Apparently, health professionals, especially in hospitals and physician's offices, are identifying and referring children at risk for development delay earlier. While 28.2 percent of referrals were in this age group in 1985,

by 1990 this age group accounted for 40.1 percent of referrals. The proportion of children 12 months or younger admitted to EIP has also increased over the six year period, while the proportion of children over one year has diminished slightly. The mean age at referral in 1985 was 11.8 months and it dropped each fiscal year after 1985; by 1990 it was 10.0 months. The mean age at admission dropped from 12.9 months to 11.9 months during this same period. These data demonstrate two simultaneous and positive trends, one from the community that is referring children at younger ages to EIP, and the other among program staff who are admitting children at younger ages.

However, the trend to admit children at earlier ages has not been able to keep pace with referrals. The increasing demand for EIP services and the trend toward earlier referrals has apparently lengthened the waiting period between referral and admission for most children. The proportion of children who were admitted one month from referral, which was typical in 1985, has steadily declined over the six year period. Children frequently wait at least two months between referral and admission now, and a smaller but increasing proportion of children wait 3 to 4 months. Longer waiting periods appear to be a result of increasing demand, rather than any programmatic change that created a barrier to speedy admissions. These data suggest that the Massachusetts EIP service system has expanded to the capacity of the current funding available, and raise important issues about future expansion of EIP services. The implementation of Part H of P.L. 99-457 and the impact of third party payor legislation enacted January 1990, will have a positive impact on capacity, but to what degree is still largely unknown.

Children in Early Intervention Programs

Children in Early Intervention Programs have a very similar distribution of race/ethnicity when compared to the population of very young children in the Commonwealth. Both teenage mothers and mothers 35 years and older were over represented in the EIP population. This would be expected since younger maternal age is an environmental risk factor for developmental delay and older maternal ages are correlated with some established diagnoses for developmental delay. There was a higher proportion of mothers in the EIP population that had not completed high school than in the general population, which is another environmental risk for developmental delay. However, there was also a higher proportion of mothers who had completed 17 or more years of education. These distributions are similar to the pattern evident for fathers' education.

In addition, the EIP population was more likely to be receiving Medicaid than the general population of families whose children were born in 1987; and 3.4 percent of the EIP population had

no insurance, slightly higher than the general population of families in 1987, which was approximately 2.5 percent (based on the payor source data from the 1987 Registry of Vital Events Birth Certificates).

While Early Intervention Programs are used by families in all socio-economic strata, the analysis suggests that EIP are making successful attempts to reach low-income families in Massachusetts, a population with a need for access to services. Over one-third of the families receiving EIP services in fiscal year 1990 were living below 100% of poverty and another 20.4 percent were between 100% and 200% of poverty. Not surprisingly, families who were unemployed and under-employed (one or both parents employed less than full time) were most likely to have income less than 100% of poverty. However, there was also a relatively large proportion of families with a full-time employed adult (44.4%) that were living at or below 200% of poverty. These are working poor families whose incomes, relative to family size, provide a minimum standard of living. Children who were living with one parent were also more likely to be living at less than 100% of poverty. Equally important, a large proportion of children in foster care (43.8%) are living below 100% of poverty and an additional 23.3 percent of the children in foster care families are living between 100% and 200% of poverty.

Results in this report demonstrate that most of the children receiving Early Intervention Program services came to a program with multiple risks. More than half the children enrolled in EIP needed services that address multiple functional problems; of these children, nearly three-quarters needed services for two or more moderate to severe functional problems. These children require inter-disciplinary services not only to treat their current functional problems, but to help them develop and maintain age appropriate skills. The Early Intervention Programs across the state are a crucial service for many families with children who are at risk of development delay. The multiple service linkages that Title V agencies, such as the Department of Public Health, can facilitate are advantageous in meeting the needs of children and families who use EIP services and other programs for children with special health care needs. These programs need continued support to maintain and increase services that prevent and ameliorate functional delays among young children in the Commonwealth of Massachusetts.

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